AGE-RELATED DIFFERENCES IN CHILDREN'S RESPONSES TO TELEVISION ADVERTISING: CENTRAL VERSUS PERIPHERAL ROUTES TO PERSUASION

A thesis submitted in partial fulfilment

of the requirements for the Degree

of

Master of Commerce in Management

in the

University of Canterbury

by

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University of Canterbury

2001

ACKNOWLEDGEMENTS

First and foremost, I would like to thank my family and my close friends for their unfaltering belief in me, and the immense support they gave me while I was completing the Management M.Com programme at the University of Canterbury.

I would like to acknowledge the supervision provided by Dr. David Fortin and Dr. Thomas Keenan of the respective Departments of Management and Psychology, University of Canterbury. Dr. Tom Keenan was particularly helpful at getting the empirical investigation underway. Dr. David Fortin was of help throughout, but especially in the latter stages: encouraging rigour in analysis and advising on presentation.

A heart-felt thank you goes out to my fellow colleagues in the Masters and Honours programmes: especially Sussie Morrish and Susan Radcliffe who had to live with this thesis on a day-by-day basis.

I would like to thank Deputy Principal Ross Browne of Queenspark School and Principal Jacqui Duncan of Cashmere Primary for not just giving me permission to conduct research in their schools, but actively encouraging it and making my job as easy as possible.

I wish to acknowledge Mother Earth Foods who provided the healthy snacks used in the empirical study. In particular, I thank Nigel Chenery for his immediate response to my last-minute request for sponsorship.

Finally, I wish to thank the children who participated in the study, and the teachers and parents who provided helpful suggestions and assistance.

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ABSTRACT

This thesis presents an empirical investigation of age-related differences in children's processing of advertising and subsequent persuasion. Limitations of paradigms used in past research on children's responses to advertising are identified: of particular concern is the rather cursory attention that has been given to involvement. This thesis investigates the potential for the Elaboration Likelihood Model (ELM) to provide a more sophisticated perspective of children's processing of advertising and resultant persuasion. Thus, both children's abilities *and* motivations to process advertising are given much-needed attention. Hypotheses are grounded in theories of children's information processing abilities that provide descriptions of expected age-related differences in children's processing of advertising.

An experimental design for assessing age-related differences in children's processing of advertising and resultant persuasion is presented. The implemented design was a 2 x 2 x 2 factorial experiment manipulating involvement with the ad (high/low) and assistance (assisted/not assisted) for children from two age groups (7-11 and 11-16) that have associated information processing abilities. Triangulation of measures, including thoughts produced during viewing, argument recognition, and formation of Attitude toward the Ad (Aad), Attitude toward the Brand (Ab), and Purchase Intention (PI), provide a holistic view of children's processing and persuasion. Thought and argument recognition analyses revealed mechanisms producing persuasion. Path analyses, using evaluations of central message arguments and peripheral cues as predictors of Aad, Ab, and PI, allowed persuasion to be specified as taken through the central or the peripheral routes.

207 children from a single full-primary school participated in the experiment. The results reveal that even children as young as 8 years of age have the ability to take the central route to persuasion. In fact, whilst the older children exhibited greater *ability* to elaborate central message arguments and thereby greater *potential* ability to take the central route, the younger children exhibited an equivalent and in some cases superior *tendency* to form attitudes via the central route to persuasion. Implications for theory, management and public policy are discussed. Further research opportunities spring forth and are duly presented.

Chapter 1
INTRODUCTION

1.1 Children as a Market

The children's market is becoming of increasing importance to marketers, consumer researchers, parents and public policy makers alike. Societal changes such as dual income households and single-parent households have vested children with unprecedented responsibilities and power (Guber & Berry, 1993). Today's children are more sophisticated than their earlier counterparts, have more influence over spending, and more products to choose from as marketers realise opportunities. Kids have become astute consumers with extensive knowledge of brand names and advertising slogans. They discriminate amongst brands and value the concept of choice (Guber and Berry, 1993).

Marketers have been showing increasing interest in the large and lucrative children's market. While advertisers have traditionally been concerned with selling toys, cereal, and candy to children, many new products are being developed specifically for kids. In recent years, the more traditional product lines have been extended and deepened. But some companies are going a step further and creating new products for children (McNeal, 1998). Computer technology is now customised for kids. Other tailored products include prepared kids meals, cosmetics and toiletries, as well as kids versions of adult products such as Pert Plus (shampoo) for kids. Adult services have also been adapted for children, including banking and investment services, and hair and eye care services. McNeal distinguishes three distinct children's markets. These are the primary market, the influence market and the future market.

The primary market is derived from 4-12 year old children spending their own money on their needs and wants. Children's purchasing power is on the rise, with the average 10-year-olds weekly income being estimated at $13.93[1] in 1997 (McNeal, 1998). Approximately one third of this income is spent on food and beverages, with the remainder distributed among a variety of products including playthings, clothing, movies and toiletries (McNeal, 1998). A subset of this market, the so called 8-12 year old "tweens", were estimated to have spent $55.7 billion in 1999 (Rosenberg, 2000a).

[1] All quoted figures are for the US unless otherwise stated.

The influence market, which is also growing, consists of children influencing their parent's spending either directly by requesting a product for themselves or indirectly via children participating actively with other family members in a purchase decision (McNeal, 1998). Direct influence (purchase requests) was estimated at $188 billion in 1997, while indirect influence may be as much as $300 billion. (McNeal, 1998). According to a recent parent poll, "children influence 40% of parent's purchases, while 65% of parents explicitly solicit children's opinions about products purchased for the entire household, including cars and computers" (Rosenberg, 2000a).

When children are viewed as a future market, they have more market potential than their primary and influence purchases combined (McNeal, 1998). With the intent of creating loyal future customers, some companies wisely nurture kids as customers before they even have the power to buy their products (McNeal, 1998). Bank United demonstrated this kind of reasoning with the introduction of it's ATM look-alikes called Kids Talking Machines (KTM) targeted at children. Ron Coben, executive vice president for Bank United, said that "We thought that if we can get people started using Bank United as kids, there's no reason they'd not want to use us down the road" (King, 1999).

The market potential of children is predicted to grow over the next decade at the double-digit rate seen in the past ten years (McNeal, 1998). Marketing to kids is not simple. A number of mistakes to date have stemmed from executives believing they fully understand children, either through using their own children as a reference point or hearkening back to their childhood days (McNeal, 1998).

1.2 Advertising to Children

Children's advertising has been a controversial topic for decades, peaking in the late 1970's, falling off in the "regulatory relaxed" 1980's, and gaining momentum over the 1990's (Armstrong & Brucks, 1988). The debate has just gained prominence in Europe with the possibility of the new European Union president – Sweden – pushing for a Europe-wide ban (Higham, 1999). The proponents of advertising to children include advertisers and their agencies, advertising organisations, and others who favour self-regulation. At the other pole of the debate are the regulators, children's activists, parent and consumer organisations, and others who favour restricting children's advertising or banning it completely (Armstrong & Brucks, 1988). For comprehensive discussions of the issues I refer the interested reader to Armstrong & Brucks (1988), Kunkel & Roberts

(1991), Bandyopadhyay, Kindra, and Sharp, (2001), and Furnham (2000). In general terms, the critics claim that children's advertising is unfair because young children have neither the cognitive ability nor the life experience to deal with it effectively (Armstrong & Brucks, 1988). On the other hand, supporters of children's advertising assert that opponents underestimate children's' abilities and that children have the right to receive truthful and tasteful advertising information (Armstrong & Brucks, 1988). The issues are incredibly complex and the battle currently being waged promises to be a protracted, costly, and frustrating affair with little hope for a complete solution (Armstrong & Brucks, 1988).

Nonetheless, the amount of money being spent on advertising is increasing steadily. In 1980, $110 million was spent on television by the three networks, while the total of broadcast advertising by the mid 1990s was estimated at over $350 million (Guber & Berry, 1993). Of products advertised directly to children, toys are the biggest advertiser on TV with 33% followed by various food categories, recreational products, records, books, school products, videos, phones, athletic shoes, toothpaste, household goods, personal care products, and clothes (Guber & Berry, 1993).

Advertisers realise that children are a special audience and try to learn as much as they can about them. Advertising agencies have developed special units devoted entirely to providing in-depth knowledge of kid's ever-changing culture (Rosenburg, 2000_b). Recommendations on suitable advertising styles and techniques are common in the literature, but unfortunately contain contradictions, particularly when comparing academic opinion with that of some practitioners. A dimension on which confusion lies is the amount of information that children can process. A tip from a respected agency is to "make the commercial move because children have high expectations and are capable of absorbing much more information in 30 seconds than adults absorb" (quoted in Kraak and Pelletier, 1998). This view of children's information processing abilities is in complete contrast to that reported in the academic literature which is that children are more limited processors of information than adults, particularly with regard to ability to handle large amounts of information (e.g. Piaget, 1953; Roedder, 1981; Flavell, Miller, and Miller, 1991; Meadows, 1993). This latter school of thought suggests that advertisers "keep it simple" when dealing with children.

Advertising - particularly television advertising - holds special meaning for children. Indeed, some authors have noted that advertising fulfils some special functions in children. Guber and Berry (1993) noted that to children the function of childhood is deciding what

they want to be. Children are naturally curious, wanting to know what everyone else does and likes in order to make their own choices easier. Kids bring that curiosity to advertising to find out what is new, to be entertained, and to find out what other kids are doing. Accordingly, they like commercials and may attend to them as much as programs (Guber & Berry, 1993).

It is likely that advertising will continue to be developed as a marketing tool with which to communicate with children. Regarding the future of advertising, McNeal (1998) makes the prediction that ads encouraging questionable activity (e.g. defying parents) will be replaced with informative ads describing the benefits of products. As the importance of advertising to children increases, marketers will require greater knowledge about how to communicate effectively to this segment.

1.3 The Advertising to Children Research Field

Not surprisingly, there has been a large amount of research addressing the concerns of consumer researchers, marketers, and public policy makers. Most of the research is on the effects of *television* advertising on children. The research has progressed fitfully and been focused on particular problem areas dictated by the social and political contexts of the time (Young, 1990). A central concern is that advertising directed at children exploits their vulnerability, so much research is aimed at describing children's advertising literacy at various ages (Young, 1990). Researchers have attempted to organise the research in a variety of ways, the most common relying on the assumption that the advertising message is processed in sequence, from watching the ad through to buying (Young, 1990). Raju and Lonial (1990) segmented the research into three broad areas: exposure to advertising, communication process effects, and communication outcome effects.

The purpose of this thesis is to uncover the mechanisms by which children of various age groups process advertising stimuli and consequently form attitudes towards advertisements and brands. Chapter 2 reviews literature pertaining to how children process advertising and are subsequently persuaded. The review identifies limitations in past perspectives and paves the way to a more sophisticated model of children's processing of advertising.

Chapter 2
LITERATURE REVIEW

2.1 Past Perspectives on Children's Processing of Advertising and Persuasion

Enhancing Children's Information Processing Skills

Enhancing children's information processing abilities has been a common interest of most involved parties, marketers being the notable exception. Information processing theory provides a detailed description of children's information processing abilities at various ages. (Roedder, 1981). Framing age differences in terms of whether children have the ability to use storage and retrieval strategies, it yields three distinct age groups: 3-7, limited processors who do not have the ability to use storage or retrieval strategies; 7-11, cued processors who have the ability to use storage and retrieval strategies if appropriately cued; and 12 and older, strategic processors who can use storage and retrieval strategies at will. When applied to a central versus incidental learning paradigm, it predicts that strategic processors should be able to control the extent of incidental learning to ensure greater retention of central content. Cued processors can do likewise if prompted, but limited processors cannot control the processing that occurs. This leads to the expectation that children aged older than seven should benefit from assistance in terms of processing advertising in a more mature manner.

A significant body of research is devoted to assessing the most effective way to improve children's information processing abilities and whether improved information processing abilities impact on children's responses to advertising. Various avenues for teaching children about advertising and encouraging discriminatory responses include parental input, school curriculum, and public service announcements (PSAs), the latter two options being the most commonly researched.

Roberts and associates (1980) set out to teach children how to process and evaluate commercials in a more "adult" rational way. They worked from the premise that if children can be made more aware of the persuasive and selling intent of commercials and can be taught to recognise various audio-visual techniques, they will be better able to evaluate advertising. The subjects in the treatment group watched one or both of two instructional films that were available to the public at that time. They assessed the impact

of the films on scales that measured the subjects' general scepticism of commercials, knowledge of advertising techniques, and beliefs in claims of specific commercials. They concluded that the films were effective in teaching the children to be more critical of commercial appeals, and those who were initially most susceptible to commercial appeals (younger children and heavy viewers) learned the most.

Feshbach, Feshbach, and Cohen (1982) sought to enhance both comprehension and discrimination of commercials with two training programs: one that was oriented towards the purposes or economics of advertising (buyer-seller interface), and one that elaborated the motivational aspects of advertising (creation of needs and desires). The results indicated that the brief training programs were effective in reducing persuasive effects of the commercials on all the dependent measures of children's comprehension, attitudes, and to a lesser extent, choice behaviours. Older children showed more resistance to persuasion but were similar to younger children on ratings of advertiser credibility. Training younger children enabled them to perform at similar levels to the untrained older children.

Christenson (1982) assessed the PSA approach by creating an extensive three minute consumer information processing spot which was inserted in programming/commercial sequences for the treatment group. He found that relative to unexposed children, six through to 12 year olds who viewed the PSA were more aware of the intent of commercials and expressed less trust of commercials in general, although the influence on the evaluations of specific products were equivocal.

Wackman, Wartella and Ward (1979) attempted to determine the extent to which children under the age of six can be taught to "filter" information in commercials. They subjected children to a training program that sought to teach children that commercials are designed to persuade people to buy products and also to teach them to look for information about products when they watched commercials. The general pattern of results suggested that the training program fulfilled its objectives in terms of improving kindergartener's recognition of core product information. However, this improvement in recognition was limited to the more concrete information presented in product claims, such as tangible product features, while recognition of more abstract kinds of product information (e.g. skill level required) did not improve.

Formation of Attitudes

Many of the studies done in the 1970s and 1980s concentrated on the children's purchase requests as the variable of interest without integrating more intermediate

attitudinal variables (e.g. Gorn & Goldberg, 1982). The influence of commercial exposure on attitude toward the brand (Ab) has been noted by Goldberg and Gorn (1974) who found that children who viewed a toy commercial experienced more favourable reactions to the toy. Although Macklin (1988) suggested that an attitude towards an advertisement (Aad) could be associated with a similar attitude toward the featured product, Phelps and Hoy (1996) were the first to empirically assess the nature of the Aad→Ab→PI (purchase intention) relationship for children. Using 8-12 year old children as subjects, a specific focus was given to the impact of brand familiarity and measurement timing while controlling for prior brand attitudes. The children's Aad measures significantly affected Ab for both familiar and unfamiliar brands, even after controlling for prior brand attitude. Interestingly, the children's Aad had a significant although modest impact on their PI responses, a result not normally found in studies using adult subjects. This latter finding illustrates the importance of treating children as a unique segment when making predictions about advertising responses. Similarly, Derbaix and Bree (1997) found a significant link between Aad and Ab, for both known and unknown brands.

Attitude-Behaviour Consistency

Attitude-behaviour consistency has been conceptualised in different ways. Goldberg and Gorn (1974) concluded that there was a consistency between attitude and behaviour in that the child subjects were able to form an attitude from a commercial exposure and their behaviour - working at an experimental task to obtain the advertised product - reflected this attitude. Roedder, Sternthal, and Calder (1983) studied the conditions under which children make choices consistent with their *prior* attitudes after viewing a commercial. Attitude-behaviour consistency was defined as when a consumer makes choices based on consideration of prior attitudes while inconsistent behaviour is defined as when only the most recently elicited (or most salient) attitude is used in the decision. They found that older children were generally better than younger children were at making attitude-consistent choices. However, even young children were capable of forming attitudes from information provided in commercials and making attitude-consistent choices, although the authors cautioned that this ability can be overtaxed when the choice alternatives are similar, numerous, or comparison is too complex.

Cognition vs. Affect in Models of Persuasion

Research on children and television advertising has primarily been concerned with *cognitive* aspects of how they process advertising. In part, this emphasis reflects the initial effort to answer the major ethical question of whether advertising to children is unfair, given that children may not have the experience or the cognitive abilities to evaluate such messages. Thus, research was framed in terms of children's *knowledge* of advertising – in particular whether they understand its persuasive intent - and children's *cognitive abilities* to process advertising. Furthermore, the theories that have been utilised in the research have been cognitive in nature, such as Piaget's theory of cognitive development and information-processing theory, which are focused on cognitive and behavioural aspects of children's development. Looking for reasons behind this cognitive emphasis, one could see that it reflects "an almost complete failure to recognise any affective streak in cognitive development" (Meadows, 1993, p. 356).

Wartella (1984) argues strongly that "for far too long research on television advertising's influence on children has focused on a rational cognitive-oriented approach to studying children's information processing of advertising messages" (p. 181). As an example, the cognitive defence stream of research views the knowledge and scepticism about advertising that is typical of children over the age of seven as a cognitive defence against advertising (Roedder-John, 1999b). That is, armed with knowledge about advertising's persuasive intent and scepticism about the truthfulness of advertising's claims, these children are often viewed as having the abilities to respond to advertising in a mature and informed manner (Roedder-John, 1999b). However, there is mixed evidence regarding the extent to which children's general attitudes and beliefs about advertising function as cognitive defences against advertising. Early research found moderate links between children's knowledge of persuasive intent and their desire for advertised products (Robertson and Rossiter, 1974). However, more recent experimental research (Christenson, 1982; Ross et al, 1984) found that children's advertising knowledge had little or no effect on evaluations of and preferences for advertised products. Likewise, Brucks, Armstrong, and Goldberg (1988), using the information processing theory framework described by Roedder (1981), found that children aged 9/10 did not use advertising knowledge as a defence unless a cue designed to activate that knowledge was present. Brucks et al (1988) suggest that this knowledge is not retrieved during commercial viewing due to information processing limitations: a cognitive based explanation. Pertinent to Wartella's (1984) argument, affective-based explanations include: 1) a child's enthusiasm

for a product over-rides the cognitive defence (Robertson and Rossiter, 1974); 2) the hedonic value of a commercial, its emotional allure, and its ability to resonate with powerful motives may be sufficient to overcome any cognitive knowledge/defence (Goldberg, 1999). Wartella (1984) identified the need for future research to expand the implicit model of persuasion used in past research to incorporate the influence of affective factors. Since then, there have been a few isolated studies that have enlarged our understanding of affective responses to advertising and their effects on attitudes, which are discussed next.

One of Derbaix and Bree's (1997) goals was to elicit the most significant predictors of Aad and Ab, using 7-10 year old children as subjects. Their model of persuasion postulated three main predictors of Aad: evaluative judgements of the arguments, evaluative judgements of the execution, and affective reactions elicited by the ad. They also considered a range of control variables such as prior Ab, children's profiles, and involvement (defined as interest in product classes). The results of the study suggested that affective reactions do matter in assessing the effectiveness of advertising. Positive verbal affective reactions significantly contributed to the explanation of the children's Aad and Ab. However, evaluative judgements of the execution - a cognitive antecedent - dominated positive verbal affective reactions as a predictor of Aad and Ab. For example, for *Aad for unknown brands*, - the variable for which *positive verbal affective reactions* had the greatest explanatory power - *verbal affective reactions* accounted for only 22% of the total explained variance (R^2 = .55), the remaining 78% of which was explained by *evaluative judgements of the execution* and *evaluative judgements of the arguments.*

Wartella's (1984) concern about the exclusion of affective components does seem justified in light of the more recent research discussed above. I agree that this was a flaw in early research and one which future research should try to rectify. However, a concern of mine is that the cognitive model of persuasion underlying much early *and recent* research is inherently weak. By this I mean that the model of cognitive processing that has usually been adopted assumes that the child is always highly motivated to process the commercials. Such a child would process advertising messages in a highly elaborate way, making active connections between prior knowledge and the information being presented. One can see this perspective underlying the cognitive defence stream of research in which it has often been assumed that knowledge about advertising techniques and its persuasive intent will be accessed and used as a defence against advertising appeals. As discussed earlier, this was not always the case. Yet, explanations do not take into account children's

motivations to defend against advertising, which would require elaboration of the advertising message. Instead, as already mentioned, explanations focus on children's limited information processing *abilities* (Brucks et al, 1988), or emotions overriding cognitive defences (Robertson and Rossiter, 1974; Goldberg, 1999).

Motivation to process the advertising message is a construct that has barely been considered with regard to children's responses to advertising. It is a construct of great importance in the field of advertising, playing a key role in many theories of persuasion, including the widely accepted Elaboration Likelihood Model (ELM: Petty and Cacioppo, 1986). A key variable affecting the motivation to process the advertising message is the perceived personal relevance of the message (Petty and Cacipoppo, 1986). In the field of advertising, motivation is typically operationalised as product involvement or involvement with the advertising message (AMI)-concepts that are usually based on dimensions of personal relevance.

Excluding involvement from conceptualisations of children's processing of advertising has effectively blind-sided researchers from possibilities that children might process advertising messages differently in different situations and for different products. Assuming that children's involvement with an advertising message is always high is unrealistic, the child might not always view television viewing as a learning opportunity or actively attend to messages or even be interested enough in the product to elaborate message claims. Therefore, although concern about affective factors is valid, the implicit model of persuasion used in past research needs to be enhanced to incorporate the influence of processing motivation on the persuasion process. The next section discusses the potential of the Elaboration Likelihood Model (ELM: Petty and Cacioppo, 1986), to provide a richer picture of children's processing of advertising.

2.2 Towards an Improved Model of Children's Processing of Advertising and Persuasion

The ELM Perspective: Central vs. Peripheral Routes to Persuasion

The ELM is a general theory of attitude change that addresses differences in the way consumers process and respond to persuasive messages (Petty & Cacioppo, 1983; Petty and Cacioppo, 1986). It has typically been conceptualised and applied as a cognitive model of persuasion in which persuasion follows a hierarchy of cognition → affect →

behaviour (Vakratsas & Ambler, 1999). However, the theory itself is more broad, allowing for the primary influence of affective factors. As stated by Petty and Cacioppo (1986, p. 5): "A person's general evaluations or attitudes can be based on a variety of behavioural, affective, and cognitive experiences and are capable of guiding behavioural, affective, and cognitive processes".

A persuasive communication is conceptualised as having two distinct elements: central message arguments and peripheral cues. In the context of advertising, central message arguments are regarded as bits of information that are relevant to a person's subjective determination of the true merits of a product. Thus, central message arguments can consist of rational product information or emotional/image-based information, depending on the true merits of the product from the perspective of the receiver. Peripheral cues are stimuli that can affect attitudes without necessitating processing of the central message arguments. Two distinct types of persuasion are identified: the central route and the peripheral route to persuasion. Which route is taken depends on the level and nature of elaboration of central message arguments that occurs in the processing of a persuasive message. High elaboration of central message arguments results in the message being processed via the central route while low elaboration leads to persuasion occurring through evaluations of peripheral cues, named the peripheral route. The ELM posits that elaboration likelihood is a function of two elements: motivation and the ability to process the message. Motivation to process the message is dependent on factors such as involvement, personal relevance, and individual needs and arousal levels. Ability depends on the receiver's knowledge, intellectual capacity, and opportunity to process the message.

Ethical Concerns from an ELM Perspective

The issues and research questions of the past and present can be framed in terms of the ELM. This section highlights the implications the ELM has for the ethical debate, that is, whether it is unfair to advertise to children. In doing so, it provides a fresh perspective of concepts such as cognitive defences and attitude-behaviour inconsistency.

The main ethical concern associated with advertising to children is that it exploits their limited cognitive ability and life experience with messages that are inherently biased and compelling. Critics claim that advertising encourages non-rational and impulsive product choices (Armstrong and Brucks, 1988). This postulated "non-rational" aspect of children's consumer behaviour seems to be at the heart of the issue. Opponents fear that advertising may cause children to desire or buy products that are inappropriate or harmful

such as expensive or unneeded toys, and sugared cereals, candy, and junk foods (Goldberg, Gorn, and Gibson, 1978). A related issue is that advertising may cause children to want products for the wrong reasons. By using premiums, product endorsers, exaggerated presentations, and other techniques, advertising may cause children to want products for reasons that are peripheral to the main product benefits.

The ELM has implications for the latter issue in particular. Assuming that central message arguments consist of rational/product-based information, then premiums, product endorsers, and execution elements are regarded as peripheral cues. Attitude formation that occurs as a result of evaluations of peripheral cues is regarded as the peripheral route to persuasion. This persuasive route is taken when the receiver is lacking the motivation or the ability (or both) to evaluate the true merits of the advertised product. Taking the peripheral route can be considered a rational *process* in that as limited processors of information, we should actively select the information to which we will and will not attend (Miller, Brickman, and Bohen, 1975; cited by Petty and Cacioppo, 1986). Thus, a child with little interest in toy trucks, and therefore little motivation to evaluate the central merits of the advertised product, could undertake a rational *process* by developing an attitude toward the product by basing it on simple cues such as catchy music and so on. However, although the process of taking the peripheral route could be considered rational, the resulting attitude must be considered less rational than if it were based on the true merits of the product. Thus, liking a toy truck because of a favourable evaluation of the music in the advertisement could be considered less rational than liking a toy truck because it had a particular feature that made it more fun to play with. I think I could safely assume that critics of advertising would prefer children to take the central route to persuasion, which as described above, is a rational process of deriving attitudes by evaluating central message arguments. By taking the central route to persuasion, the child's attitude formation process is rational in that the most relevant information in a commercial is attended to and evaluated, and this information can be compared to other information in memory and an attitude grounded in reason can be formed. Such a rational attitude formation process should lead to more rational purchase/purchase request behaviour.

Cognitive defences from an ELM perspective

The cognitive defence stream of research postulates that if children have an awareness of the intent of advertising and knowledge of what makes advertising persuasive (e.g. advertising techniques) then they will be less likely to be persuaded. It is possible

that some critics would prefer children to not be persuaded by advertising at all, an unrealistic goal given that even adults with a sophisticated knowledge of advertising are persuaded by advertising. Others would prefer the child to be highly sceptical of advertising, discounting and counter-arguing advertising messages. Yet others would prefer children to use a softer cognitive defence of advertising, focusing on relevant product information and elaborating it in an objective manner. It should be noted that the latter two distinctions correspond respectively to relatively biased elaboration and relatively objective elaboration as described by Petty and Cacioppo (1986). Regardless of the type of elaboration that critics want children to undertake, it seems clear that any evaluation of central message arguments is preferable to none at all. A realistic goal would be to encourage children to base attitudes on information that is relevant to core product benefits rather than extraneous information that does not communicate the true merits of products.

It would seem that the implicit goal of the researchers employing the cognitive defence paradigm is to empower children to take the central route to persuasion. Viewing the cognitive defence paradigm through the ELM lens, we see that taking the central route to persuasion depends on both the motivation and the ability of the receiver to elaborate message arguments. Research concerned with cognitive defence attempts to provide children with the *ability* to take the central route to persuasion. However, the research has often assumed that children will always be *motivated* to take the central route to persuasion. It seems unrealistic to assume that giving children a more adult-like knowledge of advertising will mean that they always take the central route to persuasion. After all, adults with the ability to take the central route to persuasion take the peripheral route for motivational reasons.

The ELM informs us that motivation to process central message arguments is a multifaceted construct, dependent on factors such as involvement, personal relevance, and individual needs and arousal levels. As discussed earlier, a flaw in the cognitive defence stream of research is that it has not considered the role of involvement in children's processing of advertising. The ELM suggests that children must possess both ability *and* motivation in order to cognitively defend against advertising.

Attitude-behaviour consistency from ELM perspective

The ELM views attitude stability as a function of which persuasive route is taken. Attitude change occurring through the central route to persuasion is postulated to be more

enduring and more resistant to subsequent change efforts than that formed via the peripheral route to persuasion. Additionally, attitudes derived through the central route are thought to be more predictive of behaviour.

Roedder, Sternthal, and Calder (1983) were concerned that young children exhibited behaviour inconsistent with attitudes elicited prior to viewing a commercial. They postulated that prior attitudes were dominated by attitudes formed from a commercial exposure, the most recently elicited attitudes being the basis for behaviour. A possible reason for these weakly held attitudes is that they were formed through the peripheral route to persuasion. The ELM suggests that children would possess more resistant attitudes if they formed attitudes through the central route to persuasion.

Age-Related Differences in Elaboration

Petty and Cacioppo (1986) never empirically tested the ELM on children but they did give the issue some thought. They postulated a developmental trend in elaboration in which as children mature they develop both the motivation and the ability to think about the true merits of people, objects, and issues. Specifically, the young child's attitudes are likely to be based on affective cues associated with the attitude object. As development proceeds, attitudes may begin to be formed on the basis of social attachments, simple inferences, and decision rules. At some point, the formation and change of some attitudes becomes a very thoughtful process in which issue-relevant information is scrutinised carefully and evaluated in terms of existing knowledge and values. It should be noted that this developmental trend was developed in a general context, that is, it applies to attitude formation in general and not just that pertaining to advertising. One could argue that advertising directed at children is a special context in which both the variables of motivation and ability can take on a variety of values. On the motivation dimension, children may be highly motivated to process certain advertising messages if the advertising is interesting, the product is of relevance to them, and/or the consequences of not expressing correct opinions (e.g. peer disapproval) are high. Furthermore, one would expect that advertising could be pitched at a level the target audience could understand, thereby enhancing children's ability to process the message. Thus, in the context of advertising, one cannot assume that motivation and ability to think about products is lacking in children, even very young children.

In a conceptual paper, Van Raaij (1986) predicted that cognitive elaboration would increase with increasing age, due to cognitive development, differentiation and personal

experience with the product. He distinguished four types of cognitive elaboration: pro-argumentation, contra-argumentation, source derogation, and curious disbelief. Children under the age of six were not expected to engage in much cognitive elaboration. Children between the ages of six and 12 were expected to exhibit a higher level of cognitive elaboration, although not including source derogation. Children over 12 years of age were expected to engage in all forms of cognitive elaboration, with more contra-argumentation than pro-argumentation.

Van Raaij (1986) suggested that the level of cognitive elaboration depends on product involvement, situational facilitation, and mode of presentation. Regarding involvement, Van Raaij believed that although children may be interested in a limited range of products, such as toys, candy, soft drinks, audio-video equipment, and sports equipment, the level of product involvement for these product classes may be high. Van Raaij identified the need for research with children to assess the spontaneous thoughts provoked by advertising. He hypothesised more cognitive elaboration with high as compared with low product involvement, ample as compared with restricted processing time, and increasing age.

In another conceptual paper, Brucks, Goldberg, and Armstrong (1986), concerned with children's cognitive defences, proposed that children's cognitive responses depend on a variety of factors: stage of cognitive development; knowledge about products; knowledge about advertising; knowledge about how to process biased information; degree of involvement; and verbal ability. They then proceeded to speculate the effect of these factors on the degree of children's elaboration in response to advertising. The propositions, some of which are consistent with those proposed in this thesis, remain to be empirically validated.

To my knowledge, Derbaix and Bree (1997) are the only researchers who have empirically tested an ELM inspired model of persuasion to children's processing of advertising. They conclude that "persuasion is not strongly mediated by message-related thinking but by peripheral mechanisms, here from an affective type" (p. 219). They based this conclusion on the finding that evaluative judgements of the execution and positive verbal affective reactions seemed instrumental in shaping children's Aad. However, as they themselves state, the ELM strictly applies to the formation of Ab – yet direct relationships between central/peripheral antecedents and Ab were not assessed. Additionally, the results do not mention the relationship between children's interest in the product class (the authors' conceptualisation of involvement) and their responses.

Postulated explanations for the children's peripheral persuasion were that the children possessed deficits in information processing abilities or had different goals when viewing commercials. However, the proposed deficits in information processing abilities were not described in any detail. Additionally, the children's motivations to conduct central processing were not explicitly considered. Although *interest in product classes* was included as a blocking variable, the range of responses was not reported, removing any possibility of determining its effects on the persuasive route taken.

In conclusion, consideration of age differences in elaboration has mainly been conceptual. The sole empirical study, conducted by Derbaix and Bree (1997), did not adequately apply the ELM to children's processing of advertising as it did not explicitly consider motivation and ability to elaborate, variables that are postulated to influence the persuasive route taken. Chapter 3 presents the conceptual framework used in this thesis to empirically address questions relating to age-related differences in elaboration and subsequent attitude formation.

Chapter 3
CONCEPTUAL FRAMEWORK

3.1 Present Study

The previous discussion demonstrated a need to gain a better understanding of children's processing of advertising and the subsequent formation of attitudes. This need has been recognised by leading authors in the field. In recent reviews, Roedder-John (1999a and 1999b) suggests we need a better understanding of how and when children's knowledge and understanding of advertising is utilised as children view, interpret and judge commercials. Likewise, Raju and Lonial (1990) saw the need for a clear understanding of how and why children process information as they do in order to provide a unifying framework to explain children's reactions to various aspects of advertising.

This thesis is about age-related differences in the processing of advertising and the formation of attitudes in children. The attitudes of interest are major constructs in the field of advertising, namely, attitude toward the advertisement (Aad), attitude toward the brand (Ab), and purchase intention (PI). Children are defined as being aged three through to 16, an intentionally broad definition adopted to assess the expected variance across these ages.

The ELM is applied to three distinct age groups: 3-7 years, 7-11, and 11-16. Hypotheses are derived by assessing the motivation and ability of children in each age group to elaborate central message arguments. Motivation, operationalised as involvement with the advertising message, is assumed to vary naturally between high and low levels. The ability variable of concern is children's information processing ability as related to cognitive development. Piaget's theory of cognitive development (Piaget, 1953; 1981) and information processing theory (Roedder, 1981) give insight into whether children of particular ages have the ability to elaborate central message arguments and thereby take the central route to persuasion.

In broad terms, the research question this paper addresses is:

What are the age-related differences in children's motivation and ability to take the central versus peripheral routes to persuasion?

In more specific terms, the research questions addressed are:

What are the age-related differences in the impact of involvement with the advertising message on children's processing of advertising, in terms of:

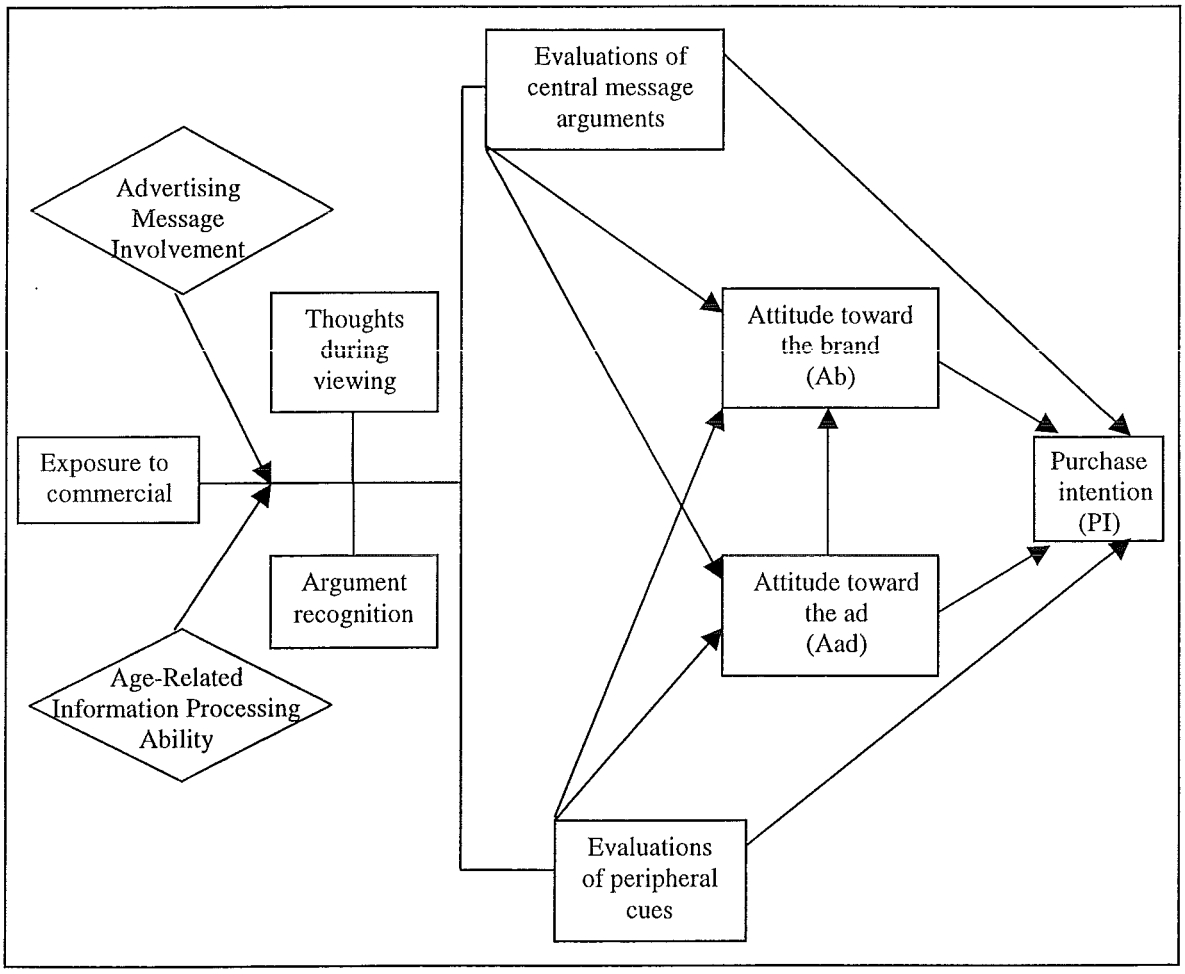
- Number and type of thoughts produced while viewing?
- Argument recognition?
- Formation of Aad, Ab, and PI?

What are the age-related differences in the effect of enhanced advertising knowledge on children's processing of advertising, in terms of:

- Number and type of thoughts produced while viewing?
- Argument recognition?
- Formation of Aad, Ab, and PI?

Figure 1 presents a graphical representation of the conceptual framework. Children's processing of commercials is measured by thoughts produced during viewing and argument recognition. Children's attitude formation is modelled as relationships between evaluations of central message arguments/peripheral cues and attitudes toward the ad, attitudes toward the brand, and purchase intention. Advertising message involvement and age-related information processing ability are postulated to moderate both children's processing of commercials and resultant attitude formation.

Figure 1. Conceptual Framework



Age Ranges

This thesis adopts the conceptual framework proposed by Roedder-John (1999a) for the purposes of studying consumer socialisation. Consumer socialisation has been defined as "processes by which young people acquire skills, knowledge, and attitudes relevant to their functioning as consumers in the marketplace" (Ward, 1974, p.2: cited by Roedder-John, 1999a). This thesis is clearly in the realm of consumer socialisation and adopts the proposed conceptual framework accordingly. The conceptual framework proposes three stages of consumer socialisation: the perceptual stage (3-7 years), the analytical stage (7-11), and the reflective stage (11-16). These stages were developed by integrating Piaget's theory of cognitive development and information processing theories as well as social development theories, and applying an encompassing label to the stages.

It should be noted that the associated characteristics of any particular stage are based on the general tendencies of children in that age group (Roedder-John, 1999a). As cognitive development is not a perfectly discreet process, there will be some degree of variance in information processing abilities among the children in a particular stage. Thus, the stage descriptions are most representative of the children in the middle of the age-range and the stages overlap to allow for variation at the ends of the ranges.

Motivation

The ELM postulates that whether the central or peripheral route to persuasion is taken depends on the motivation (and ability) of the consumer to do so. Involvement is one component of motivation and can be with regard to a product, an advertisement, or a situation (Zaichkowsky, 1994). A common conceptualisation of involvement is that of personal relevance towards a stimulus object (Zaichkowsky, 1994). A consumer will only engage in high levels of cognitive processing if the topic is personally relevant (Petty and Cacioppo, 1983). The literature is limited regarding children's motivation to think about a message. Derbaix and Bree (1997) noted that the concept of involvement had never been defined or operationalised for children.

Brucks, Armstrong, and Goldberg (1986) make an interesting prediction regarding the link between personal relevance and elaboration in the case of children. They suggested that children might not be motivated to form a reasoned and veridical opinion when an advertised product is personally relevant to them. Drawing from casual observation, they suggested that emotional reactions dominate reasoned and veridical

thinking when children process advertising of personal relevance. Thus, they hypothesised that the ELM does not extend to young children. In contrast to that predicted by the ELM, high involvement results in equal or fewer elaborative responses than low involvement, due to affective reactions replacing cognitive responses.

This thesis challenges Bruck et al's (1986) assumption that children might not be motivated to form a reasoned and veridical opinion when a product is personally relevant. It has been noted that advertising is valued as a device for social interaction, serving as a focus of conversation with peers, a means of belonging and group membership, and a vehicle for transferring and conveying meaning in their daily lives (Ritson and Elliott, 1998: cited by Roedder-John, 1999a). Thus, it seems logical that it is important to children to possess defendable opinions about advertising and advertised products, even if it is for the purpose of impressing peers.

It seems intuitive that children have the capacity to be highly involved with certain product categories. Evidence of this can be seen in the success of Barbie, the world's top-selling fashion doll (Guber and Berry, 1993). The opinion of a senior marketer at Mattel is that "the doll is the prop on which young girls project their very private dreams" (Guber and Berry, 1993, p.69). It seems reasonable to assume that children experience comparable ranges in levels of product involvement to adults.

Regarding advertising message involvement, Derbaix and Bree (1997) thought that children, compared with adults, have fewer reasons to view commercials for information. However, findings from descriptive studies tend to support the notion that children are highly motivated to process commercials for information. Some authors have noted that advertising fulfils some special functions in children. Guber and Berry (1993) noted that, to children, the function of childhood is deciding what they want to be. Children are naturally curious, wanting to know what everyone else does and likes in order to make their own choices easier. Kids bring that curiosity to advertising to find out what's new, to be entertained, and to find out what other kids are doing. Accordingly, they like commercials and may attend to them as much as programs. This evidence gives the impression that children have the capacity to be highly involved with advertising, processing the advertisement for information as well as entertainment.

Thus, motivation to elaborate message content seems to exist in children. This motivation seems to be a function of advertising and product involvement, as well as a need for cognition. One would expect individual differences in children on these variables but the preceding discussion highlights that motivation to process commercial messages

may exist in some children. Past research has tended to attribute a lack of motivation to the finding that children take the peripheral route (e.g. Derbaix and Bree, 1997). The above evidence suggests that this may not be a valid explanation as children may have similar motivation levels as adults. The discussion now turns to *ability,* the other aspect of the ELM.

Information Processing Ability

Having the motivation to think about a persuasive message is not enough to ensure that the central route is followed (Petty and Cacioppo, 1983). A person must also have the ability to think about the central message information that is presented. A number of variables can affect a person's ability to think about a message. These include distracting stimuli, type of medium, repetition, message complexity, and prior knowledge (Petty and Cacioppo, 1983). A variable that has received limited attention in the ELM literature is a person's information processing ability as related to cognitive development. This is possibly due to all but Derbaix and Bree (1997) using adults as subjects. This thesis provides a detailed discussion of the information processing abilities of children to inform the ability aspect of the ELM.

Cognitive development theory has been the basis for many studies in the area of communication process effects. In fact, it has been claimed that Piaget's theory of cognitive development (Piaget, 1953; 1981) has been the most influential in this research area (Raju and Lonial, 1990). The theory posits that at different developmental stages, children select, evaluate, and use information in particular ways. Piaget proposed four stages of cognitive development: the *sensorimotor* stage (0-2 years); the *preoperations* stage (2-7); the *concrete operations* stage (7-11); and the *formal operations* stage (11 and older). Each of these stages is characterised by particular cognitive structures. Critical dimensions include perceptual boundedness: the extent to which a child organises his/her conceptual skills to mediate incoming stimuli; and centration: the extent to which a child focuses on a limited amount of information. A brief overview of these stages is shown in Appendix 1.

Although Piagetan cognitive development theory has been widely used, some researchers have proposed alternative frameworks to explain age-related differences in children's reactions to advertising. A limitation with Piaget's theory is that his cognitive structures indicate limits on children's ability to process information, but they do not explain how or why children process information within these limits (Roedder, 1981).

Information processing theory has emerged with the function of extending Piaget's theory by providing a higher level of mechanistic detail (Roedder, 1981). This theory interprets differences in children's reactions to television advertising in terms of cognitive abilities to use storage and retrieval strategies. Three types of processors can be identified: strategic (13 years and older); cued (8-12); and limited (under 8 years). The characteristics of the three types of processors are overviewed in Appendix 1. In the development of hypotheses, both Piaget's theory and information processing theory are utilised, serving to illuminate the differences between these theories. However, when these theories conflict, the actual hypotheses are based on information processing theory rather than Piaget's theory, due to information processing theory being grounded in a higher level of mechanistic detail (Roedder, 1981).

Perceptual Stage (3-7 years)

Piagetian theory classifies children in this age group as preoperational (Piaget, 1953; 1981). The behaviour of children in this age group is described as being closely linked to perception. The child's thoughts about objects are poorly organised. Regarding the processing of stimuli, only the dominant features are used to make judgements. Due to being highly perceptually bounded the preoperational child tends to focus on that which is immediately perceivable rather than that which would require a greater depth of processing and more abstract thought. In an advertisement, peripheral cues such as music, action, and the attractiveness of the source are more perceptually dominant than the central message arguments. Elaborating central message arguments is done at a more conceptual level whereas processing peripheral cues can be achieved at a perceptual level. Thus, children in this age group would be likely to focus on the peripheral cues to the detriment of the central message arguments. Additionally, children in this age group possess limited ability to focus on several dimensions at once. Due to centration, children in this age group are unable to process central message arguments if their attentions are focused on peripheral elements. These arguments suggest that children aged 3-7 years form attitudes through the peripheral route to persuasion.

Applying the information processing framework to children of this age yields a comparable proposition, albeit from different arguments. From this perspective, children aged 3-7 years are limited processors who possess mediational deficiencies (Roedder, 1981). This implies that these children cannot use storage and retrieval strategies to enhance learning. Information processing theory suggests that limited processors are not

able to control the processing that occurs. Limited processors are predicted to be unable to actively select, store, and retrieve information that is central to the task at hand. This proposition has been supported by a number of studies that found that limited processors learned less central information than did strategic processors (cited by Roedder, 1981: Christie & Schumacher, 1975; Collins, 1970; Collins, 1979; Diechmann, Speltz, & Kausler, 1971; Hale, Miller, & Stevenson, 1968; Siegel & Stevenson, 1966). This outcome was attributed to limited processors allocating a disproportionate amount of their cognitive resources to processing incidental information. Information processing theory predicts that aided learning is of little value to limited processors who do not take full advantage of prompts to learn (Roedder, 1981). Instead, they process a large amount of incidental material along with central material.

In the context of processing commercials, the above results suggest that children aged 3-7 do not have the ability to select and elaborate central message arguments, which is a requirement if the central route is to be taken. They have no attention strategy, presumably focusing on that which is most perceptually salient. Assuming that peripheral cues are more perceptually salient and require less effort to process than central message arguments, it is likely that children aged 3-7 allocate a greater amount of their processing effort to peripheral cues than central message arguments. These arguments suggest that children aged 3-7 do not possess the ability to take the central route to persuasion, nor can they be aided to do so. Both information processing theory and Piaget's theory of cognitive development suggest that children aged 3-7 will form attitudes through the peripheral route to persuasion.

Proposition[2] 1

Children aged 3-7 do not have the ability to take the central route to persuasion, and therefore will take the peripheral route irrespective of motivation to elaborate central message arguments.

[2] Labelled a proposition rather than a hypothesis because it was not empirically tested in this thesis

Analytical stage (7-11)

In Piagetian terms, 7-11 year old children are referred to as concrete operational children (Piaget, 1953; 1981). These children are developing logical thinking skills. They can think conceptually and organise (concrete) ideas well. Concrete operational children are less perceptually bounded than preoperational children. As a result of cognitive growth, they are more able to organise their conceptual skills to mediate incoming stimuli, rather than simply responding to what they perceive (Ward, Wackman, and Wartella, 1977). Additionally, they are able to focus on several dimensions at once. These arguments tend to support the notion that children aged 7-11 have the ability to process the central message arguments of an advertisement.

However, the following discussion illustrates conflicting notions from information processing theory. In information processing terms, 7-11 year old children are labelled cued processors. They exhibit production deficits in that they are able to use storage and retrieval strategies only if aided. Therefore, if unaided, cued processors are expected to have similar information processing abilities to limited processors. Cued processors are predicted to be unable to actively select, store, and retrieve information that is central to the task at hand. This proposition has been supported by a number of studies that found that cued processors learned less central information than did strategic processors (cited by Roedder, 1981: Christie and Schumacher, 1975; Collins, 1970; Collins, 1979; Diechmann, Speltz, and Kausler, 1971; Hale, Miller, and Stevenson, 1968; Siegel and Stevenson, 1966). This outcome was attributed to cued processors allocating a disproportionate amount of their cognitive resources to processing incidental information.

In the context of processing commercials, the above results suggest that unaided children aged 7-11 do not have the ability to select and elaborate central message arguments, which is a requirement if the central route is to be taken. They have no attention strategy, presumably focusing on that which is most perceptually salient. Assuming that peripheral cues are more perceptually salient and require less effort to process than central message arguments, it is likely that unaided children aged 7-11 allocate a greater amount of their processing effort to peripheral cues than central message arguments. These arguments suggest that unaided children aged 7-11 do not possess the ability to take the central route to persuasion, which contradicts the proposition derived from Piaget's theory of cognitive development.

However, information processing theory suggests that children aged 7-11 would be able to process central message arguments if they were assisted in an appropriate way.

Assistance could involve identifying what central information constitutes and communicating that it should be focused on. Hagan (1967) found that when learning was aided, central learning increased with age, whereas incidental learning remained constant across age ranges (cited by Roedder, 1981). In particular, cued processors selectively processed more central information to the detriment of incidental learning. These results have been widely supported (e.g. Drucker and Hagen, 1969; Hale and Alderman, 1978: cited by Roedder, 1981). Aided learning allows cued processors to access latent information processing abilities that increase processing of central information to the detriment of peripheral information.

Thus, if assisted, children aged 7-11 should have the ability to take the central route to persuasion. Which route they take will depend on their motivation to elaborate central message arguments. The above discussion leads to Hypothesis 1A and Hypothesis 1B below.

Hypothesis 1

A) ***Children aged 7-11 do not have the ability to take the central route to persuasion unless assisted. Therefore, (unassisted) children aged 7-11 will take the peripheral route to persuasion irrespective of motivation to take the central route.***

B) ***However, children aged 7-11 who are assisted will take the central route to persuasion when so motivated, while those lacking such motivation will take the peripheral route to persuasion.***

Reflective Stage (11-16)

Piagetian theory labels children aged 11-16 as formal operational. These children are developing adult-like cognitive abilities that are predicted to be fully developed by age 16. These children are developing the ability to think abstractly. Of interest to this paper is the developing ability to use all aspects of a stimulus to make judgements, as well as the use of reason and logic. These children are becoming less perceptually bound and less prone to centration. These arguments suggest that children of this age have the ability to take either the peripheral or the central route at will. Thus, the route taken will depend on the motivation to elaborate.

Information processing theory suggests a similar proposition. These children are labelled strategic processors (particularly those 13 and older). They have the ability to use storage and retrieval strategies at will. They can suppress the learning of incidental information to ensure the learning of central information (cited by Roedder, 1981: Collins, 1970). Strategic processors are not expected to benefit significantly from aided learning because they spontaneously use the strategies motivated by prompts (Roedder, 1981). Thus, children aged 11-16 have the ability to take the central route to persuasion and assistance is not expected to enhance their abilities to do so. Whether the central or the peripheral route is taken will depend on the motivation of the children to elaborate central message arguments.

Hypothesis 2

Children aged 11-16 have the ability to take the central route to persuasion unassisted. Therefore, irrespective of assistance, they will take the central route when motivated to do so, while those lacking such motivation will take the peripheral route.

Implicit in the above discussion is the postulation that children in the reflective stage (11-16) have greater natural ability to take the central route to persuasion than children in the analytical stage (7-11), unless the analytical stage children are appropriately assisted. Hypotheses 3 and 4 explicitly make this comparison. An added function of hypotheses 3 and 4 is that the comparisons are not based on the dichotomous measure of which persuasive route the children take, but on the continuous measure of the different *levels* of central versus peripheral processing and attitude formation that the children are expected to undertake.

Hypothesis 3

Children aged 11-16 have greater natural (unassisted) ability to take the central route to persuasion than children aged 7-11. Therefore, when motivated to take the central route, children aged 11-16 will conduct processing and attitude formation more representative of the central route than children aged 7-11 (unassisted) who are similarly motivated.

Hypothesis 4

Children aged 7-11 who are assisted will have ability equivalent to the children aged 11-16 (who will not benefit from assistance) to take the central route to persuasion. Therefore, when motivated to take the central route, children aged 7-11 who are assisted will conduct processing and attitude formation in a manner as representative of the central route as those aged 11-16.

Chapter 4
METHODOLOGY

4.1 Experimental Design

A 2 x 2 x 2 between subjects factorial experimental design was used, manipulating involvement with the ad (high/low) and assistance (assisted/not assisted) for children from two age groups (7-11, and 11-16)[3] that have specified information processing abilities. Thus, involvement with the ad and assistance are specified as treatment factors while age related information-processing ability is a blocking variable. Thus, four experimental conditions were created for each age group, younger (Y) and older (O): (1) assisted/high involvement with ad (AS/HV); (2) assisted/low involvement with ad (AS/LV); (3) unassisted/high involvement with ad (UAS/HV); (4) unassisted/low involvement with ad (UAS/LV).

Procedure and Participants

Two pre-testing phases were conducted before the main experiment. The first phase consisted of 10 one-on-one interviews with children in the 7-13 years age range. These participants were gained from a mail-drop in an area average in socio-economic terms. The one-hour sessions were conducted in the participants' homes, with parental supervision. The aim of this first pre-test phase was to assess the suitability of stimulus material such as various educational programs and commercials. Additionally, the interview style of the sessions enabled discussion of the research instruments and subsequent adjustment of confusing language and questions. The children were debriefed and given a small monetary reward of $10 for their time and effort.

The second-phase of the pretesting was a small-scale version of the main experiment. It was conducted at a single full-primary school, with two year 6 classes and two year 8 classes-93 children in total. The aim of this phase was to practise and assess the experimental procedure, and again check the suitability of the stimulus material and the research instruments. Discussions with the children and their teachers were very valuable

[3] The youngest age group (3-7) was excluded from the empirical study due to methodological difficulty in designing an experiment suitable for such a wide range of ages and cognitive ability.

for fine-tuning the instruments. The children were debriefed and were each given a healthy snack as an appreciative gesture.

The main experiment consisted of eight experimental sessions conducted over the period of a week. A total of 207 children (47 percent female) were recruited from a single full-primary school (not the pre-test school) for the main experiment. The children recruited for the 7 – 11 age group were mainly aged 8 and 9 (96 percent) while those recruited for the 11 – 16 age group were mainly aged 11 and 12 (92 percent). The full-primary school used as a source for the subjects is thought to contain students from a broad range of socio-economic backgrounds. In aggregate, it is a fairly average school in terms of socio-economic level with an associated decile ranking of seven. The school was specifically chosen so that the sample would be representative of similarly aged children in the general population in terms of gender, ethnicity, and socio-economic level.

Eight school classes were each randomly assigned to an experimental condition, class sizes ranging from 22 through to 32. The classes were not streamed, so were expected to contain a typical range of abilities. Each experimental session lasted one hour and was conducted in a classroom made available for this purpose.

Each experimental session was essentially identical in format, with treatments varying as required. The children first viewed a fifteen-minute educational program: a video on television advertising was viewed by those in the assisted condition while those in the unassisted condition viewed a control video on the topic of plays. After viewing, the children were required to complete a short quiz on the information contained in the video they watched. Next, the children were instructed to watch a typical segment of television: one consisting of approximately seven minutes of programming followed by commercials (unspecified number). At this point they were administered either the low or high involvement treatment. After viewing the program and (single) commercial they completed the main measures section, which assessed the involvement manipulation, thoughts while viewing, argument recognition, and attitude formation. Finally, they completed a control quiz, which was the one that the groups in the opposing assistance treatment had completed earlier.

The procedure was so designed that groups in opposing treatments experienced equivalent processing demands. Pretesting revealed that one hour was a suitable session length, not overly taxing either age group in terms of attention demands. Care was taken to ensure the children did not guess the real purpose of the study. They were told in general terms that I was conducting research on the topic of children and television. At the end of

the session they were congratulated for doing well and given a healthy snack as a small token of appreciation.

4.2 Treatments and Stimuli

Assistance Treatment

The assistance treatment consisted of two components: a video titled TV Ads (Australian Broadcasting Corporation, 1996) designed to boost advertising knowledge, and a short quiz on the content that acted as a cue before viewing (see Appendices 2 and 3). TV Ads was selected for its fit with predetermined criteria. The goal of the treatment was to provide children with the ability to conduct *objective* elaboration (Petty and Cacioppo, 1986), which necessitated certain criteria for video selection. First, the tone of the video had to be neutral in that it was neither pro-advertising nor anti-advertising (which would encourage biased elaboration). Thus, it should not attempt to encourage outright counter-arguing or outright support-arguing, but rather the ability to objectively evaluate the ad. Second, it should not provide strict processing instructions about how to process advertising, as that would confound the involvement with the ad treatment. Therefore, it should not impose rules such as "you should not allow yourself to get carried away with the action", but simply provide information on various techniques that advertisers use to persuade such as the use of favourable peripheral cues and the use of well-crafted message arguments. TV Ads is a 15-minute video from the Text File series produced by the Australian Broadcasting Corporation. It was designed specifically for use in schools for children in upper primary/lower secondary classes. It satisfied the criteria completely.

The second stage of the treatment involved providing an assistance cue before the children viewed the advertisement. This cue was to have the function of reminding the children of what they had already learned regarding advertising. The cue was in the form of an advertising quiz administered just before watching the television segment which contained the target commercial. This advertising quiz also functioned as the assistance manipulation check. The quiz provided the opportunity for the children to assimilate the information they learned from TV Ads and was intended to maintain the salience of the knowledge while they viewed the commercial. The cue did not provide explicit processing instructions, but specially designed questions within the quiz aimed to exercise the children in central route processing. One question required the children to imagine a situation in

which they had to learn the benefits of a product. They had to think about a variety of peripheral cues and central elements and decide which would be helpful. This later corresponded to the involvement manipulation in which the children were instructed to learn the benefits of a designated product. It was intended that the quiz question previously discussed would act as an implicit processing instruction. An explicit processing instruction was avoided because it was thought that it would confound the involvement manipulation. Instructing the children to pay attention to only the central message arguments would effectively provide them the *motivation* to take the central route. Instead, an implicit processing instruction was given with the intention of allowing the children to access any latent information processing abilities *should they want to.*

The control treatment given to those in the unassisted condition consisted of viewing Plays (Australian Broadcasting Corporation, 1996), a 15-minute video from the same series as TV Ads (see Appendix 2). It was a very similar video to TV Ads on dimensions of format and complexity, but necessarily on a topic conceptually distinct from advertising.

Involvement with Advertising Message Treatment

The motivation construct associated with the ELM is conceptualised as advertising message involvement (AMI: Laczniak and Muehling, 1993). While several interpretations of AMI exist in the advertising literature, this paper adopts the perspective that considers AMI to be primarily a personal/situational (message/personal relevance) construct, which is consistent with ELM research (Laczniak and Muehling, 1993).

Thus, AMI was manipulated by attempting to increase or decrease the personal relevance of the advertising stimulus itself. A combination of the Learn and Decide manipulation instructions reviewed by Laczniak and Muehling was used (1993). The commercial that the children saw was a peanut butter commercial. The children designated for the high involvement condition were told:

While you are watching TV this time, I want you to imagine that you are going to buy some peanut butter straight after class. It doesn't matter whether you like peanut butter or not. Just pretend that you are going to the supermarket after class and are going to buy some peanut butter. There will be lots of different brands on the shelf and you have to choose the one you most like. When you see the commercials come on, remember that you need to buy some peanut butter and that you want to find out about the different brands

that are out there. Remember that you want to learn the benefits that each brand of peanut butter has to offer. You only need to find out about peanut butter and nothing else.

The children designated for the low involvement condition were told:

While you are watching TV this time, I want you to imagine that you are going to buy some orange juice straight after class. It doesn't matter whether you like orange juice or not. Just pretend that you are going to the supermarket after class and are going to buy some orange juice. There will be lots of different brands on the shelf and you have to choose the one you most like. When you see the commercials come on, remember that you need to buy some orange juice and that you want to find out about the different brands that are out there. Remember that you want to learn the benefits that each brand of orange juice has to offer. You only need to find out about orange juice and nothing else.

This manipulation relies on the rationale that the children in the high AMI condition should process the peanut butter commercial as though it were personally relevant to them while the low AMI children should process it as though it were not personally relevant to them. Of course, the children were not told there would be only one commercial following the program. There were only told that there would be a program followed by *commercials* (unspecified number) so that the children in the low involvement condition would not be surprised at a peanut butter commercial appearing and would be expecting orange juice commercials to follow.

The Filler Program

The program that the children viewed before the commercial was chosen for its fit with predetermined criteria. The program was intended to enhance external validity by approximating a typical segment of television that the children might watch. It had to be appropriate and interesting for all the children in the sample so that they would watch it as they would normally watch a program of choice. Therefore, it had to non-gender specific and appropriate for the younger and the older age group. The program chosen for this purpose was an education-type program on African school children and the dangers they faced on their walk to school. It was adopted from Animal Planet, a television series developed to appeal to a wide range of ages. Pretesting revealed that children found the program fun and interesting to watch.

The Commercial

The commercial that the children watched was for Kraft Peanut Butter (see Appendix 2). The commercial was chosen because it had only been screened in Australia and few (if any) children in the sample would have seen it. This was to avoid the confounding influence of wear-out effects such as children recognising the commercial and "switching off" or some children possessing greater knowledge from having seen it more often. The commercial was also chosen on the basis that it was non-gender specific and appropriate to both age groups. Additionally, the type of appeal used was balanced between informational and emotional, meaning it contained rational product information the children could process if they decided to take the central route.

4.3 Measurement

Manipulation Checks

The involvement with the ad manipulation check was a three item, five point bipolar type scale that attempted to assess whether the manipulation was successful in gaining the desired levels of the specified AMI construct. Because AMI was operationalised from a personal relevance perspective, the manipulation check is designed to assess whether the manipulation achieved the expected effect on the perceived personal relevance of the ad. The manipulation check was adapted from Laczniak and Muehling (1993):

When you watched the Kraft Peanut Butter ad, did you watch it...
...as if you wanted to learn about Kraft Peanut Butter?
...as if you wanted to learn the benefits of Kraft Peanut Butter?
...as if you wanted to learn what Kraft Peanut Butter had to offer?

Endpoints: not at all (1)/ definitely (5)

The assistance manipulation check was an advertising quiz that assessed knowledge of the techniques that advertisers use and knowledge of which components of advertising are useful in learning the benefits of the advertised products (see Appendix ?). As previously mentioned, this measure also served to provide a description of age-related

differences in advertising knowledge. The control (unassisted) subjects were required to complete a quiz on plays, which served as a test of the control manipulation.

Measuring Central vs. Peripheral Routes

A number of different measures are available to assess the extent of message elaboration, including self-reported cognitive effort, argument recall, thought-listing, electrophysiological responses, affective reactions, and responses to manipulations of argument quality (Petty and Cacioppo, 1986). The latest research testing ELM-type frameworks have utilised path analysis to assess whether the central or peripheral route has been taken (e.g. Lord, Lee and Sauer, 1995, Derbaix and Bree, 1997). This approach has typically involved measuring evaluations of central and peripheral elements and assessing how these are related to attitudes toward the ad, attitudes toward the brand, and purchase intention. Thus, if evaluations of central message arguments are significantly related to attitudes then this is interpreted as evidence that the central route has been taken. One criticism of this approach, however, is that it taps outcomes of cognitive processing rather than the actual processes and may mask processing subtleties which could be observed with the inclusion of cognitions as intervening variables (Lord, Lee and Sauer, 1995).

For this present study, three main types of measures were used to assess whether the central or the peripheral route to persuasion was taken. Path analysis was used to assess the formation of Aad, Ab, and PI using evaluations of central message arguments and evaluations of peripheral cues as independent variables. In conjunction, thought listing and argument recognition were used to tap the actual cognitive processing undergone and unmask processing subtleties.

Thought-listing

Cognitive response measures, elicited by thought-listing techniques, are believed to be accurate reflections of subjects' cognitive processing of commercials (Wright, 1973; Wright 1980, Brucks, Goldberg, and Armstrong, 1986). Cognitive response measures, elicited by general probes such as "What thoughts and feelings were going through your mind as you watched the commercial?" avoid the potential biasing effect of overly direct questions, and provide data directly pertinent to the ongoing processing of information (Brucks et al, 1986, p. 651). Brucks, Armstrong, and Goldberg (1988) successfully used cognitive response measures with children but cautioned that they may not be suitable for children younger than five years due to their limited verbal ability.

In this present study, cognitive response measures were obtained by giving the children a blank page of paper with a probe written at the top: *What were you thinking about during the ad? In the space below, write down all the things you were thinking about during the ad.* In addition, the children were given the verbal explanation that the thoughts did not have to be related to the ad, but to write down whatever they were thinking about while watching the ad.

Previous cognitive response research has used a variety of classification schemes to categorise thoughts. Cacioppo, Hawkins, and Petty (1981) proposed three dimensions by which responses can be differentiated: *target*, the object at which the response is directed; *origin*, the primary source of the information contained in the response; and *polarity*, whether the response favours or opposes the advocacy. Brucks et al (1988) made the categories within the dimensions more specific for the purpose of retaining more information about the cognitive responses.

The classification scheme used in this study borrows from both schemes but is adapted to reflect the theoretical orientation of the propositions it will test. Therefore, the scheme is designed to illuminate whether the responses are indicative of the central route or the peripheral route to persuasion. A critical dimension is *target,* the object at which the response is directed. A distinction is made between central objects – those that are relevant to the message arguments, and peripheral objects - those that are irrelevant to the message arguments. Other dimensions included are *origin of thought* and *polarity of thought.* A final dimension combines the classifications and identifies the response as either central or peripheral. Definitions and examples of the categories within each dimension are provided in Appendix 6.

Central responses are defined as thoughts of any polarity and of any origin that are targeted toward the product, product class, or the message arguments. Peripheral responses are defined as thoughts of any polarity and of any origin that are targeted toward the executional elements of the ad, the ad communicators, or any other object irrelevant to the central message arguments.

This measure will enable the propositions to be tested in part. For example, the total number of central thoughts could be used as a crude indicator of whether the central route to persuasion has been taken. A high number of central responses could be interpreted as evidence of a high level of elaboration upon objects relevant to the message arguments – the central route to persuasion. Similarly, a high number of peripheral responses could be interpreted as evidence of the peripheral route being taken. The

number of central thoughts in relation to the number of peripheral thoughts will provide a measure of the overall central vs. peripheral nature of subjects' responses.

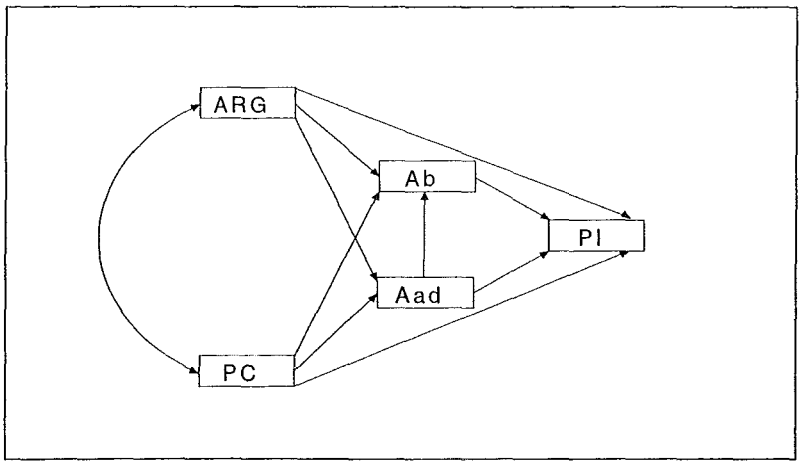
Argument Recognition

So that the subject's recognition memory for central message arguments could be assessed, subjects were required to respond to a diverse pool of claims, some of which actually appeared in the ad and others that were plausible but not appear in the ad. Following the procedure originally used by Jacoby and Hoyer (1989: cited by Lord et al, 1995), subjects responded to each statement using a three-point scale: did appear in ad; did not appear in ad; don't know. Correct recognition was coded as +1, incorrect as –1, and "don't know" as 0, with the sum of the recognition scale serving as a recognition memory index. For the purposes of analysis, high recognition was interpreted as an indication that the central route was taken whereas low recognition indicated that the peripheral route was followed.

Path Analyses

The formations of Aad, Ab, and PI were assessed by performing path analyses using AMOS Version 3.62 (Arbuckle, 1997) on the path diagram produced in Figure 2. Figure 2 demonstrates the unconstrained model – one that includes all possible non-recursive relationships. Due to relatively small sample sizes within cells, it was desirable to use a backward elimination method of reducing the number of estimated path coefficients in order to increase the observations: parameters ratio to desirable levels-5 observations per estimated parameter, (Hair et al, 1998)-thus increasing the statistical power to ascertain significance. Using this procedure for each cell individually, non-significant paths were eliminated one by one in the order of non-significance until only significant relationships remained. Thus, each final model was a constrained version of that shown in Figure 2.

Figure 2. Path analysis framework



The link between path diagram relationships and central and peripheral routes

Petty and Cacioppo (1981) define the central route as being taken when a subject's attitudes are derived from evaluations of message arguments. In contrast, the peripheral route is defined as being taken when a subject's attitudes are constructed from evaluations of peripheral cues. Strictly speaking, the ELM doesn't allow for concurrent processing of central and peripheral cues. As such, in its pure form, the ELM would specify the central route as significant paths from ARG to Aad, Ab or PI while not allowing any significant paths from PC to Aad, Ab, or PI, the opposite being the case for the peripheral route to persuasion. This assumption is relaxed in this study as more recent research has suggested the possibility of concurrent processing (Lord et al, 1995; Bohner, Crow, Erb, and Schwarz, 1992: cited by Hale et al, 1995).

Therefore, the central route is defined here as being taken when a subject's attitudes are derived *predominantly* from evaluations of message arguments. Conversely, the peripheral route is defined here as being taken when a subject's attitudes are constructed *predominantly* from evaluations of peripheral cues.

Dependent Measures

The measures used in this study accounted for the limited cognitive abilities of the child subjects. Thus, scales that are typically "7-point scales" were reduced to "5-point scales" and the wording was simplified to be easily understood by the youngest subjects. Scales that were borrowed from past research have yielded acceptable levels of reliability using Cronbach's alpha as an indicator. Reverse scoring was used for some items on every scale as a way to ensure that the subjects were answering correctly. Subjects were

informed of this and told to carefully read the terms at either end of the scale so that they gave their real answers.

Evaluations of central message arguments

Similar research using adult subjects typically had subjects evaluate argument strength on multiple dimensions using 5-point semantic differential scales including persuasive-unpersuasive, informative-uninformative, weak-strong, believable-unbelievable (e.g. Lord et al, 1995; Petty, Cacioppo, and Schumann, 1983). The scale used in the present study employs similar dimensions but altered wording more suitable for children. Subjects were reminded of the claims that appeared in the commercial, which was necessary to avoid confounding from the argument recognition task in which they were presented with false claims. Subjects then evaluated argument strength on four dimensions using 5-point semantic differential scales: don't matter at all/matter very much; do not help me understand the product at all/help me understand the product a lot; do not make me want the product at all/make me want the product a lot; do not believe them at all/believe them a lot.

Evaluations of peripheral cues

Consistent with past research (e.g. Lord et al, 1995), subjects evaluated peripheral cues on items similar to those used for Aad. Thus, subjects evaluated the peripheral elements (music, characters, colours, action) on a 4-item 5-point semantic differential scale polarised by the terms: do not like it at all/like it a lot; boring/fun; stupid-great; dull/exciting.

Attitude toward the ad

Aad is defined here as a predisposition to respond in a favourable or an unfavourable way to a particular advertising stimulus at a particular exposure occasion (MacKenzie and Lutz, 1989). Aad was elicited using the same scale as Phelps and Hoy, a 4-item 5-point semantic differential scale polarised by the terms: hate it/like it a lot; boring/fun; stupid/great; dull/exciting.

Attitude toward the brand

Ab is defined here as a predisposition to respond in a favourable or unfavourable way to a particular brand after presentation of an advertising stimulus (Phelps and Hoy,

1996). Ab was operationalised as the sum of a six-item, five-point bi-polar scale. The scale integrated one especially developed for children by Pecheux and Derbaix (1999) and one used by Phelps and Hoy. The items were: it is bad/it is good; not very nice/very nice; I do not like it at all/I love it; I think it is useless/I think it is really useful; boring/fun; great/stupid. The useless-useful item was adapted from Pecheux and Derbaix (1999) and reflects a utilitarian dimension whereas the other items are more hedonic in nature.

Purchase intention

As in the study by Phelps and Hoy (1996), purchase intention was conceptualised as how likely is it that an individual would purchase a product. For children, purchase intention also means how likely it is that they ask someone else, typically parents, to buy something for them (Ward, Wackman & Wartella, 1977). This conceptualisation places the role of child in the decision process as a decider. This role is important whether the child is buying a product for him/her self or asking his/her parents to purchase a particular brand. Purchase intention was operationalised as a two item, five point bi-polar scale. The first item asked the children: "*If your parents asked you what type of peanut butter you wanted, how likely is it that you would ask your parents to buy Kraft Peanut Butter*?" – not at all likely/very likely. The second item asked "*If your parents asked you to buy some peanut butter, would you buy Kraft Peanut Butter*? – never buy/definitely buy.

Chapter 5
ANALYSIS AND RESULTS

5.1 General Results

Examination of Data

The data was examined for violations of assumptions underpinning the multivariate analysis before any of the main analyses were conducted. Data examination began with checks for outliers and unaccountable missing values. Only one out of 207 cases contained missing data: a participant missed the PI measure, which was on the back page of the questionnaire. The data imputation method of mean substitution was used to replace this single missing value, the mean being that of PI for the participant's group (Hair et al, 1998). Testing for violations of multivariate analysis assumptions followed the procedure outlined by Hair et al (1998), including tests of normality, homoscedasticity, and linearity.

Checking for departures from normality involved assessing histograms, normal probability plots, and the Kolgomorv-Smirnov (Lilliefors Significance Corrected) statistic for each main measure in the thought, argument recognition, and path analyses. These were conducted on the aggregate-level, age-level, and the individual group level. In general, the histograms, normal probability plots Kolgomorv-Smirnov statistics revealed no substantial departures from normality (see Appendix 7 for the data distribution of variables used in the path analyses).

The homoscedasticity of variables used in two-way Anova was assessed using Levene's test for equality of variance. Results were mixed, with the younger children's responses generally being more homoscedastic than the older children's responses. In particular, the younger and the older children's *total number of thoughts* showed significant heteroscedasticity, as did the older children's *c-p measure*. However, these measures were not the main measures of interest, *number of central thoughts* and *number of peripheral thoughts* being the focal point of the analysis and resulting conclusions.

The homoscedasticity of variables used in path analyses was analysed through examination of the residuals (standardised residual vs. standardised predicted). No patterns of increasing or decreasing residuals were found, indicating acceptable homoscedasticity for all the path analysis variables.

Linearity was assessed through both an analysis of residuals and partial regression plots. The partial regression plots revealed generally well defined linear relationships between the between the independent and dependent variables. Additionally, the residuals revealed no identifiable non-linear patterns, indicating that linear models were most approporiate.

The reliabilities of multiple-item scales used in the path analysis were assessed using Cronbach's alpha, on aggregate, age-specific and group specific levels. Levels of Cronbach's alpha were as desired, generally being above 0.8 (see Appendix 8).

Manipulation Checks

Involvement manipulation – involvement with advertising

Table 3 reports the results of the manipulation check. The aim of the involvement manipulation was to separate the sample into groups that were high in advertising involvement and groups that were low in advertising involvement. Ideally, the low involvement manipulation groups (LV) levels of involvement would be statistically similar, below the scale mean of 3, and significantly different from the high involvement manipulation groups (HV) levels of involvement, which would be statistically similar and above the scale mean of 3.

Table 1. Mean Involvement Scores

Group	Mean	S.D
(Y) AS/HV	3.05	1.11
(Y) AS/LV	2.47	1.21
(Y) UAS/HV	2.70	1.08
(Y) UAS/LV	2.49	1.11
(O) AS/HV	2.17	.77
(O) AS/LV	2.45	.77
(O) UAS/HV	1.75	.68
(O) UAS/LV	1.60	.86

Analysis of the manipulation check results revealed that the involvement manipulation did not consistently have the desired effect. In general, the levels of involvement could best be classified as low – moderate. The highest value was 3.05, only slightly above the scale mean. The rest of the values ranged from 1.60 to 2.70. Thus, *according to the manipulation check*, the aim to achieve values falling either side of the scale mean was not attained.

Analysing the results of the younger groups shows that involvement varied in the expected directions, that is, the mean level of involvement for LV was always lower than that of HV. However, these values were not always statistically different. T-tests reveal that the AS/HV group's value of 3.05 was significantly larger than the AS/LV and UAS/LV groups' values of 2.47 and 2.49 respectively ($p = .070$, $p = .050$). However, the UAS/HV group's level of involvement at 2.70 was not significantly larger than the either the AS/LV or UAS/LV groups' values stated above ($p = .48$, $p = .46$). The two LV groups did report similar levels of involvement ($p = .231$), as did the two HV groups ($p = .956$).

The older children's results fall further from the region of desirability. In general, the values for the older children were lower than those for the younger children. The AS/HV group's mean level of involvement was significantly higher than the UAS/LV group's ($p = .021$), but was not significantly different to the AS/LV group's. The other high involvement group, UAS/HV, had a mean level of involvement that was significantly higher than the AS/LV group's ($p = .002$), but not significantly different to the UAS/LV group's level of involvement ($p = .497$).

This lack of convergence between the manipulation and the manipulation check can be interpreted in different ways (Perdue and Summers, 1986). It might be due to a weak manipulation or an unreliable manipulation, or an invalid or unreliable manipulation *check* (or some combination of these factors). The logic of Perdue and Summers (1986) would suggest that obtaining non-significant results for the manipulation check does not discredit the manipulation if the measures used are of questionable validity. Pretesting revealed that the children found the initial manipulation check hard to understand. A revised manipulation check was then used in the actual data collection without further pretesting. It may be that the children found it hard to understand the manipulation check, thus reducing its construct validity. Pretesting also revealed that some of the children interpreted the involvement with the advertising message manipulation check as a check of involvement with peanut butter-or how much they liked peanut butter. Thus, although (as revealed later) the treatment successfully manipulated involvement with the advertising

message, the actual manipulation check might be revealing how involved the children were with peanut butter-a quite different construct.

Rather than relying on a potentially invalid manipulation check, an option is to use alternative approaches to assess whether the manipulation was successful. One such approach is to assess whether the pattern of results are consistent with the broad theory underlying the study (Perdue and Summers, 1986). If so, one might claim this as demonstrating a degree of nomological validity and thus evidence that the construct validity of the manipulation has been provided. Of course, the strength of this claim would depend on the absence of plausible rival interpretations other than the manipulation.

Analysis of the thoughts listed in the thought listing exercise indicates that the involvement manipulation did influence the children's processing in the expected manner. Amongst the younger children, the low involvement groups reported a greater number of peripheral thoughts, consistent with theory. Amongst the older children, the low involvement groups had fewer central thoughts and more peripheral thoughts than the high involvement groups. Further, amongst the older children, the high involvement groups performed better at the argument recognition task. And finally, the results for the attitude formation exercise reveal that for the older children, those in the high involvement condition formed their attitude toward the brand in a way more typical of the central route, a widely reported result from studies performing involvement manipulations (e.g. Petty and Cacioppo, 1983; 1986). Given the high level of internal validity striven for in the design of the study, it is unlikely that rival explanations exist for these effects.

In conclusion, analysis of the results provides overwhelming evidence that the involvement manipulation did achieve some of its goals. Both younger and older children showed some of the expected differentiation in their responses corresponding to the involvement manipulation they experienced. Thus, the assumption that underlies the analyses and resulting conclusions is that the involvement manipulation did create groups that were higher and lower in advertising involvement. However, inherent in rejecting the manipulation check is the loss of information regarding the actual levels of involvement that the manipulation achieved.

Assistance manipulation – knowledge of advertising

The assistance manipulation was intended to split the sample into groups that were higher and lower in advertising knowledge. Analysis of the advertising knowledge scores between the high assistance and low assistance groups revealed that the manipulation had

indeed been successful in all cases. Amongst the younger children, the mean scores for the two assisted groups were significantly higher than those of the two unassisted groups (p-values < .014). An identical pattern of results is found for the older children (p-values < .027).

Table 2. Mean Advertising Knowledge Scores

Group	Mean	S.D
(Y) AS/HV	11.10	5.17
(Y) AS/LV	8.88	4.37
(Y) UAS/HV	5.93	3.15
(Y) UAS/LV	5.78	4.67
(O) AS/HV	12.82	6.30
(O) AS/LV	12.36	5.74
(O) UAS/HV	8.87	4.33
(O) UAS/LV	8.08	3.22

An age effect is also apparent in which the older children achieved higher scores for advertising knowledge in six out of eight comparisons of groups in equivalent assistance conditions (p-values < .038). The younger children in the AS/HV condition scored 11.10, statistically equivalent to the older children's scores of 12.82 in the AS/HV condition (p = .280) and 12.36 in the AS/LV condition (p = .405). Thus, although the older children generally reported greater advertising knowledge, the younger children demonstrated the potential to be assisted to an equivalent level.

Control manipulation – knowledge of plays

Although not designed to influence the variables of interest, the control manipulation served to create equal processing demands on all subjects in the sample. As expected, for both younger and older children, the UAS groups that received the control treatment designed to boost plays knowledge (instead of advertising knowledge) scored higher on the plays knowledge quiz than the AS group that did not receive the control treatment (p –values < .0001).

Processing Knowledge

One component of the advertising knowledge quiz (Q3) assessed the extent to which the children knew how to process a commercial for maximum benefit by extracting all the relevant information and disregarding the irrelevant. They were asked to imagine a hypothetical situation in which they have a desire to get a new toy and they then see a commercial for a toy they might be interested in. They were told to pretend that they wanted to learn the benefits of the advertised toy. They were given a list of elements that the commercial could contain – some which would help them (elements corresponding to central message arguments) and some which would not help them learn the benefits of the advertised toy (peripheral cues). They were asked to indicate which of the elements they thought would help them to evaluate the advertised toy. Potential scores ranged from –7 through to 7.

Table 3. Mean Processing Knowledge Scores

Group	Mean	S.D
(Y) AS/HV	4.03	2.58
(Y) AS/LV	4.00	2.77
(Y) UAS/HV	2.41	2.27
(Y) UAS/LV	2.13	3.70
(O) AS/HV	3.82	3.79
(O) AS/LV	4.09	2.52
(O) UAS/HV	3.43	2.95
(O) UAS/LV	3.46	1.82

Analysis revealed that when assisted, younger children had a level of processing knowledge comparable to the older children (p – values > .819). However, when unassisted, the younger children scored lower on this portion of the test. All of the comparisons demonstrated this pattern although only two out of four were statistically valid: the older children in the UAS/LV condition scored higher than the younger children in the UAS/LV and the UAS/HV groups ($p = .079$, $p = .068$ respectively).

Amongst the younger children, the assisted consistently scored higher on this portion of the test than the unassisted (p – values < .042). Additionally, the two assisted

groups scored equally well (p = .965) and the two unassisted groups equally poorly (p = .731).

There were no significant differences between any of the treatment groups for the older children (p –values > .336). However, differences were in the expected direction, with the assisted children scoring slightly better than the unassisted.

The result that the younger children's processing knowledge was boosted by the assistance manipulation suggests that when unassisted they have less ability to take the central route to persuasion. Interestingly, the older children did not benefit from assistance even though their scores suggested room for improvement. However, the unassisted older children's scores were higher than the unassisted younger children's were, reflecting a greater natural ability to take the central route. Encouragingly, when assisted, the younger children possessed similar potential to take the central route as the older children.

Attitude toward Commercials

This portion of the advertising knowledge quiz (Q7 and Q8) assessed children's attitudes toward advertising. This was measured with a two item, four point semantic differential scale. One item assessed how much they thought advertising told them about advertised products in general, while the other assessed whether they thought TV ads were truthful. The mean of the two items served as a *scepticism scale,* lower values indicating greater scepticism.

Group means were clustered tightly around a grand mean of 2.63, notably above the scale midpoint and towards the pro-advertising end of the scale. In general, the older children were more sceptical of TV advertising than the younger children were, supporting a widely published result (Roedder-John, 1999b). For nine out of sixteen comparisons, the older children were more sceptical than their younger counterparts (p –values < .065) For the remaining seven comparisons, the younger children were as sceptical as the older were (p – values > .239).

The assistance manipulation was not expected to have a significant impact on attitudes toward advertising as it was designed to provide unbiased knowledge about advertising and techniques advertisers use. It did not provide information about false advertising or techniques that could be considered to be unfair or distort reality.

As expected, the assistance manipulation had little effect on the younger children's scepticism towards TV advertising. In four treatment comparisons, only one case produced significant differences in scepticism levels. Contrary to expectations, one of the

assisted groups had a less sceptical attitude toward TV advertising than one of the unassisted groups.

Likewise, for the older children, the assistance manipulation did not generally affect scepticism levels. Again, the one exception is an assisted group reporting less sceptical attitudes than an unassisted group.

Purpose of TV ads

The children were asked an open-ended question relating to what they thought the purpose of TV advertising was. Scores ranged from 0 – 2, 1 indicating a partial understanding and 2 indicating a more sophisticated understanding of the purpose of TV advertising.

In eight comparisons, the younger children scored as well as the older children in five cases, scored worse in two cases, and in one case achieved a higher score for this question. It is interesting to note that the two cases of younger children scoring lower than the older children both occurred in the unassisted condition. Conversely, the single case of the younger children having a more sophisticated knowledge of the purpose of TV advertising occurred in the assisted condition.

There was evidence of assistance effects amongst the younger children. For three out of four cases, the assisted younger children had a better understanding of this concept than the unassisted (p –values < .084). The mean for the assisted groups was 1.55 compared to the unassisted group's mean of 1.18.

The older children shared similar scores for this question regardless of assistance. The grand mean for the groups was 1.52, indicating a reasonably sophisticated-although not complete-understanding of the purpose of TV advertising.

Comparing the grand means reveals that the assistance treatment boosted the younger children's knowledge of the purpose of advertising to the same level as the older children. However, when unassisted, the younger children had a more basic understanding of this concept.

Knowledge of advertising techniques

Analysis of this portion of the results revealed that when unassisted, the older children possessed a greater knowledge of advertising techniques than the unassisted younger children. This was true for three out of four comparisons (p – values < .061).

Similarly, when assisted, the older children performed better on this part of the quiz than the younger assisted children (p – values < .037).

The younger children all benefited from the assistance manipulation in terms of gaining knowledge about advertising techniques (p –values < .074). Similarly, the older children reported significantly greater knowledge of advertising techniques when assisted (p – values < .002).

The older children experienced a mean score gain 3.61 when assisted, larger than the younger children's mean score gain of 2.02. Thus, the older children had a greater base knowledge of advertising techniques and learned more from the assistance treatment about advertising techniques.

5.2 Thought Analyses

Total number of thoughts (C + P)

General age differences

The mean number of thoughts for each group are shown in Table 6. Comparing younger to older children in the AS/HV (1.32 vs. 1.45) and UAS/LV (2.06 vs. 1.73) conditions reveals that the younger children had the same number of thoughts as the older children (p = .546, p = .200). However, in the AS/LV (1.50 vs. 2.41) and UAS/HV (1.22 vs. 2.00) conditions the younger children produced significantly fewer thoughts than the older (p = .035, p= .001).

Table 4. Mean number of thoughts for each cell.

Group	Mean	S.D
(Y) AS/HV	1.32	1.05
(Y) AS/LV	1.50	1.02
(Y) UAS/HV	1.22	0.51
(Y) UAS/LV	2.06	1.08
(O) AS/HV	1.45	0.51
(O) AS/LV	2.41	1.68
(O) UAS/HV	2.00	0.90
(O) UAS/LV	1.73	0.87

Younger children

Two-way ANOVA derives a significant model for *total number of thoughts* as a function of involvement and assistance for the younger children ($F_{3,110} = 4.787$, $p = .004$). As can be seen from observing Table 5 and Figure 3a, two-way ANOVA reveals a significant main effect for involvement (INV) ($F_{1,110} = 8.006$, $p = .005$) qualified by a marginally significant interaction between involvement and assistance (ASS) ($F_{1,110} = 3.422$, $p = .067$). For children in the low involvement condition, there was a significant decrease in the number of thoughts when they were assisted (1.50 vs. 2.06, $p = .053$). However, assistance did not seem to affect the number of thoughts produced for the children in the high involvement condition (1.22 vs. 1.32, $p = .637$). Looking from an involvement perspective: children who were unassisted produced a greater number of thoughts when they were in the low involvement group (2.06 vs. 1.22, $p = .000$). However, those that were assisted produced a similar number of thoughts regardless of which involvement condition they experienced (1.32 vs. 1.50, $p = .531$).

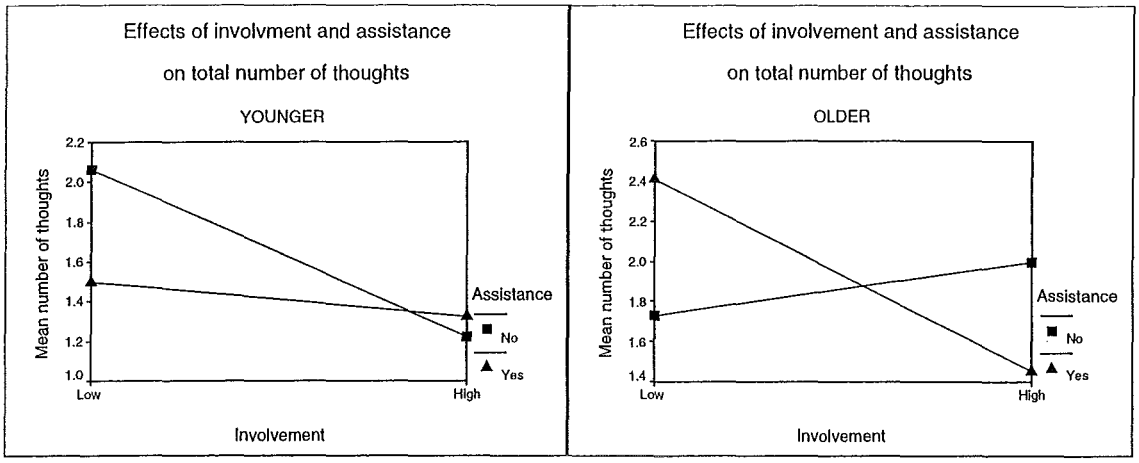
Table 5. Effects of involvement and assistance on total number of thoughts

Age Group	Source	F	Sig.
YOUNGER	Model[a]	4.787	.004
	INV	8.066	.005
	ASS	1.663	.200
	INV * ASS	3.422	.067
OLDER	Model[b]	3.214	.027
	INV	2.373	.127
	ASS	.089	.766
	INV * ASS	7.568	.007

[a] R Squared = .115 (Adjusted R Squared = .091)

[b] R Squared = .098 (Adjusted R Squared = .067)

Figure 3a **Figure 3b**



Older children

Two-way ANOVA also derives a significant model for *total number of thoughts* as a function of involvement and assistance for the older children ($F_{3,89}$ = 3.214, p = .027). Figure 3b reveals an interaction between involvement and assistance for the older children ($F_{1,89}$ = 7.568, p = .007). This interaction is stronger in effect and of a different nature than that experienced by the younger group. Assistance increased the number of thoughts for the children in the low involvement group (2.41 vs. 1.73, p = .098) and decreased the number of thoughts for those in the high involvement group (1.45 vs. 2.00, p = .017). Switching to an involvement perspective reveals that the assisted children produced more thoughts in the low involvement condition (2.41 vs. 1.45, p = .017), whilst the unassisted children produced a similar number of thoughts in each involvement condition (2.00 vs. 1.73, p = .296).

Central vs Peripheral Thoughts

General age differences

Checking Table 6 for age differences within equivalent conditions generally reveals no significant differences in the number of central and peripheral thoughts, nor the C – P index. The one exception is the UAS/HV condition, within which the older children had significantly more peripheral thoughts than the younger (1.26 vs. .67, p = .021). However, there could be different mechanisms producing for these seemingly similar results. The

analysis now turns to assessing differential involvement and assistance effects between the age groups for the three measures (C, P, and C-P).

Table 6. Number of Central (C) and Peripheral Thoughts (P), and C – P index.

	YOUNGER			OLDER		
Group	**Measure**	**Mean**	**S.D**	**Measure**	**Mean**	**S.D**
AS/HV	C	.68	.83	C	.55	.60
	P	.65	.91	P	.91	.81
	C – P	.03	1.40	C – P	-.36	1.33
AS/LV	C	.54	1.10	C	.73	.88
	P	1.17	1.49	P	1.64	1.14
	C – P	-.63	2.14	C – P	-.91	1.11
UAS/HV	C	.56	.51	C	.83	.89
	P	.67	.83	P	1.26	.92
	C – P	-.11	1.28	C – P	-.43	1.56
UAS/LV	C	.59	.71	C	.35	.49
	P	1.47	1.02	P	1.35	.63
	C – P	-.88	1.39	C – P	-1.00	.69

C – P Index

The C – P index provides a summary measure of the centrality of the thoughts produced during viewing. The rationale behind this measure is that children who produce a greater number of central thoughts relative to peripheral thoughts are undertaking processing more representative of the central route. A limitation of this measure – being a summary measure - is that it masks processing subtleties. For example, a certain treatment might have the effect of increasing the number of central and peripheral thoughts in equivalent amounts, an important effect that is not highlighted by the C – P index. Thus, later analyses focus on treatment effects for the number of central and peripheral thoughts individually.

Younger children

Two-way ANOVA derives a marginally significant model of C – P as a function of involvement and assistance for the younger children (Table 7: $F_{3,110} = 2.265$, $p = .085$). The model assigns a significant main effect to involvement ($F_{1,110} = 5.856$, $p = .017$), but not to assistance ($F_{1,110} = .449$, $p = .504$). Figure 4a shows the main effect of involvement: the high involvement groups reporting a higher C – P index than the low involvement groups. However, T-tests on the differences in the C – P index between the high and low involvement groups reveals that the differences are only marginally significant in a statistical sense. For children in the assisted condition, the high involvement group's C – P value (-.36) is not statistically different from the low involvement group's C – P value (.91), using traditional significance levels as a reference ($p = .147$). Likewise, for those in the unassisted condition, the C – P values of the high involvement group (-.43) and the low involvement group (-1.00) are not significantly different ($p = .120$). However, the pattern of differences is as expected, with the high involvement groups undergoing processing more representative of the central route.

Table 7. Effects of Involvement and Assistance on C – P index.

	Source	Df	F	Sig.
YOUNGER	Model[a]	3	2.265	**.085**
	INV	1	5.856	**.017**
	ASS	1	.449	.504
	INV * ASS	1	.033	.856
OLDER	Model[b]	3	1.707	.171
	INV	1	4.941	**.029**
	ASS	1	.105	.746
	INV * ASS	1	.002	.969

[a] R Squared = .058 (Adjusted R Squared = .032)

[b] R Squared = .054 (Adjusted R Squared = .023)

Figure 4a

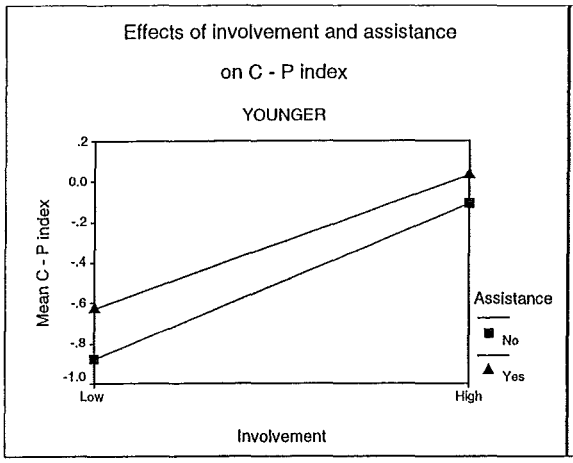
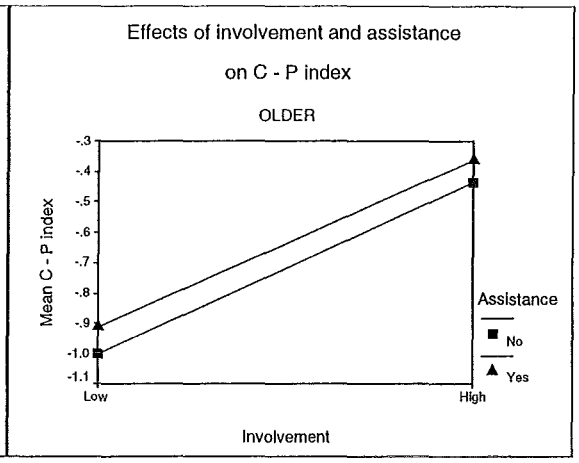


Figure 4b



Older children

For the older children, two-way Anova did not produce a statistically significant model for C – P as a function of involvement and assistance ($F_{3,89} = 1.707$, $p = .171$). However, the model produced was similar to the one produced for the younger children in which involvement was designated a main effect. Figure 4b shows the consistent pattern - albeit statistically insignificant – of the high involvement groups undertaking processing more akin to the central route.

Number of Central Thoughts

Younger children

The model that ANOVA derived for the number of central thoughts as a function of involvement and assistance is not significant for the younger children ($F_{3,110} = .165$, $p = .920$). Thus, the number of thoughts produced by the younger children was not dependent on either the level of involvement or assistance.

Table 8. Effects of Involvement and Assistance on Number of Central Thoughts

	Source	df	F	Sig.
YOUNGER	Model[a]	3	.165	**.920**
	INV	1	.104	.748
	ASS	1	.053	.818
	INV * ASS	1	.329	.567
OLDER	Model[b]	3	2.065	**.110**
	INV	1	.973	.326
	ASS	1	.111	.740
	INV * ASS	1	4.797	**.031**

[a] R Squared = .004 (Adjusted R Squared = -.023)

[b] R Squared = .065 (Adjusted R Squared = .034)

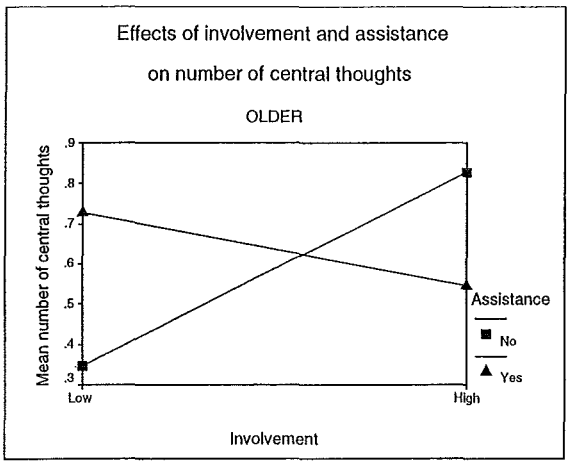
Older children

Anova derived a marginally significant model for the older children ($F_{3,89} = 2.065$, $p = .110$). Evident is a significant interaction between involvement and assistance ($F_{1,89} = 4.797$, $p = .031$) as can be seen in Figure 5.

Assistance increased the number of central thoughts produced by the children in the low involvement condition (.73 vs .35, $p = .081$), but had no effect on the number of central thoughts of those in the high involvement condition (.55 vs .83, $p = .222$).

From an involvement perspective, the assisted children produced more central thoughts in the low involvement condition compared to the high involvement condition (1.64 vs .91, $p = .019$). However, when they were unassisted, the children in the *high* involvement group produced more central thoughts than the children in the low involvement group (.83 vs .35, $p = .021$).

Fig 5.



Number of Peripheral Thoughts

Younger Children

Two-way ANOVA produced a significant model (Table 9) for the number of peripheral thoughts as a function of involvement and assistance for the younger children ($F_{3,110} = 4.223$, $p = .007$). The model assigned a significant main effect to involvement ($F_{1,110} = 10.721$, $p = .001$) but not to assistance ($F_{1,110} = .028$, $p = .897$).

The main effect for involvement can be seen in Figure 6a in which the low involvement group produced more peripheral thoughts than the high involvement group when unassisted (1.47 vs .65, $p = .001$). The pattern was the same for the assisted groups, with the low involvement group producing more peripheral thoughts, the difference being marginally significant (1.17 vs .65, $p = .116$).

Table 9. Effects of involvement and assistance on number of peripheral thoughts

	Source	df	F	Sig.
YOUNGER	Model[a]	3	4.233	**.007**
	INV	1	10.721	**.001**
	ASS	1	.641	.425
	INV * ASS	1	.482	.489
OLDER	Model[b]	3	2.542	**.061**
	INV	1	4.911	**.029**
	ASS	1	.028	.867
	INV * ASS	1	3.065	**.083**

[a] R Squared = .103 (Adjusted R Squared = .079)

[b] R Squared = .079 (Adjusted R Squared = .048)

Fig 6a

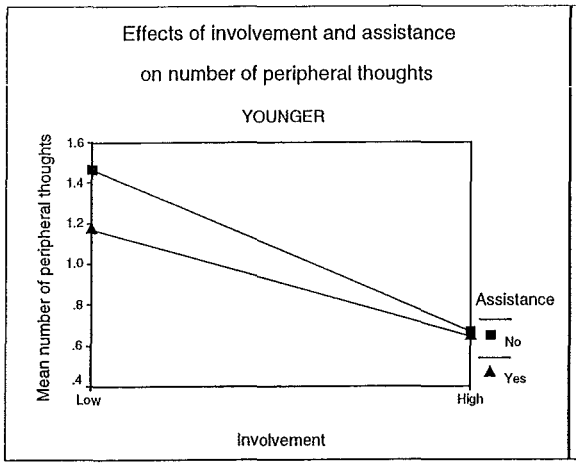
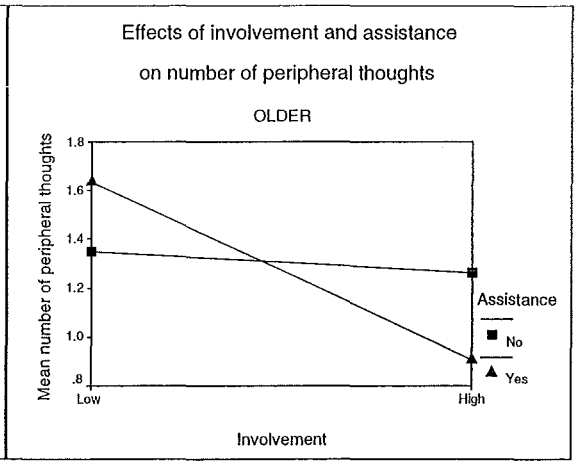


Fig 6b



Older Children

The model (Table 9, Figure 6b) for the older children was marginally significant ($F_{3,89}$ = 2.542, p = .061). There was no significant main effect for assistance on the number of peripheral thoughts ($F_{1,89}$ = .028, p = .897). Involvement is designated a main effect ($F_{1,89}$ = 4.911, p = .029) but is qualified by a marginally significant involvement*assistance interaction ($F_{1,89}$ = 3.065, p = .083).

From an assistance perspective the interaction is not significant: for the children in the low involvement condition, assistance did not significantly effect the number of

peripheral thoughts (1.64 vs 1.35, p = .294), nor did assistance influence number of peripheral thoughts for children in the high involvement condition (.91 vs 1.26, p = .180).

However, viewing the interaction from an involvement perspective reveals that for children in the assisted condition, those in the high involvement group produced significantly fewer peripheral thoughts than those in the low involvement group (.91 vs. 1.64, p = .019). Although, for the unassisted children the level of involvement had little influence on the number of peripheral thoughts (HV 1.26 vs. LV 1.35, p = .703).

5.3 Argument Recognition

Younger Children

Interestingly, T-tests revealed that there were no significant differences in argument recognition (Table 10) between the younger children groups. Thus, neither assistance nor involvement seemed to have any impact on argument recognition for the younger children.

This result is backed up by a two way ANOVA in which no significant model can be derived for argument recognition as a function of involvement and assistance (Table 11: $F_{1,110} = .148$, p = .931).

Table 10. Argument Recognition Scores

Group	Mean	S.D
(Y) AS/HV	1.81	2.21
(Y) AS/LV	1.62	1.58
(Y) UAS/HV	1.81	1.78
(Y) UAS/LV	1.97	1.94
(O) AS/HV	3.18	.85
(O) AS/LV	2.55	1.79
(O) UAS/HV	3.26	1.05
(O) UAS/LV	2.31	1.64

Table 11. Effects of involvement and assistance on argument recognition

	Source	df	F	Sig.
YOUNGER	Model[a]	3	.148	**.931**
	INV	1	.001	.970
	ASS	1	.238	.627
	INV * ASS	1	.216	.643
OLDER	Model[b]	3	2.686	**.051**
	INV	1	7.447	**.008**
	ASS	1	.074	.786
	INV * ASS	1	.296	.588

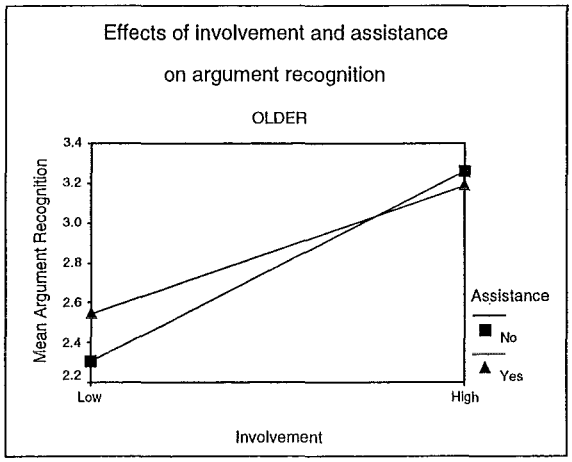
[a] R Squared = .004 (Adjusted R Squared = -.023)

[b] R Squared = .083 (Adjusted R Squared = .052)

Older children

As evident in Table 11 and Figure 7, two-way ANOVA reported only a main effect for involvement ($F_{3,89}$ = 7.447, p = .008). For the unassisted children, the high involvement group scored significantly higher argument recognition than the low involvement group (3.26 vs. 2.31, p = .021). There is also evidence for this effect in the assisted condition with the high involvement group scoring higher - although not significantly so at traditional significance levels - than the low involvement group (3.18 vs. 2.55, p = .143).

Fig 7.



Younger vs Older

Comparing the younger children to the older children in equivalent conditions reveals that in three out of four cases the older children had significantly higher argument recognition scores. The one case in which the younger had similar scores to the older children was the unassisted/low involvement condition (1.97 vs 2.31, p = .482).

Pooling the (statistically similar) argument recognition scores for the younger children yields a mean of 1.82 (S.D: 1.89). Given that potential scores could range from – 4 through to 4, a mean argument recognition score of 1.82 is not too distressing. However, the older children showed more differentiation in their argument recognition depending on the condition to which they were subject. Additionally, their pooled mean argument recognition score is 2.81 (S.D: 1.44), significantly higher than the younger children's score of 1.82 (p = .000). These results lead provide some evidence that the older children conducted processing more representative of the central route.

5.4 Path Analyses

General Framework

The procedure used to derive models for the experimental groups was essentially in the tradition of Joreskog (1971: as described by Byrne, 1994). In this tradition, tests for invariance begin with a global test of the equality of variance-covariance structures across groups. Rejection of the null hypothesis then argues for the non-equivalence of the groups and thus for the subsequent testing of increasingly restrictive hypotheses in order to identify the source of variance.

Model Construction

In order to conduct a global test of the equality of variance-covariance structures, Model A was constructed, which constrained the entire variance-covariance matrix as equal. Testing the null hypothesis of equivalent variance-covariance structures yielded a chi-square statistic of 158.226 (df = 105, p = .001). Thus, the null hypothesis of equivalence was rejected – there were significant differences between the groups in terms of variance and covariance.

In order to identify the source of variance, Model B was constructed, which constrained only the regression weights to be equal across groups. Variance-covariance structures were allowed to differ between groups. The test of the null hypothesis of equivalent regression weights across groups yielded a chi square value of 83.889 (df = 63, p = .04), which would be rejected at conventional levels of significance. Thus, there were significant differences between the groups in terms of regression weights, requiring that the final "C" class of models allow regression weights (as well as variance-covariance structures) to differ across groups.

The path diagrams for the final C class models (group specific) are presented in Appendix 9. As discussed earlier, final models were obtained by a backward elimination procedure in which insignificant paths ($p < 0.05$, one-tail) were dropped one by one, starting with the least significant path and testing significance after each removal. The estimated model parameters in the form of *unstandardised* regression weights for each group are presented in Table 12 along with goodness of fit measures. See below for a brief discussion of why unstandardised coefficients were used instead of standardised coefficients as a basis for comparison. Additionally, the critical ratios for each corresponding pair of parameter estimates across groups are presented in Appendix 10. These critical ratios have a standard normal distribution under the null hypothesis that the difference between two parameter estimates is zero (Arbuckle, 1997). For example, a critical ratio of larger than 1.645 (in absolute value) reveals that the estimates are significantly different at the .05 level (one-tail), whilst a critical ratio greater than 1.282 reveals significance at the .10 level (one-tail).

Unstandardised vs Standardised Coefficients in Path Analysis

The use of unstandardised coefficients for comparison of causal structures across groups was decided on after careful consideration of the long-standing debate in the social sciences over the use of standardised coefficients in regression and path analysis (Kim and Ferree, 1981). As described by Kim and Ferree (1981), a major argument against using standardised coefficients in either within-group or across-groups comparison is that standardised coefficients are based on variable and group-specific means and variances. Thus comparability can be impaired by differing variance structures in either dependent and independent variables within groups, or variables of interest across groups (see also Achen, 1982). Even if causal importance is defined as the proportion of variance

explained, this is dependent on the group-specific variance structure that is irrelevant or extraneous to the causal law under consideration (Kim and Ferree, 1981).

In this thesis, the causal importance of a variable is defined as the amount of changes in the dependent variable that can be introduced by changes in the causal variable (Kim and Ferree, 1981). The unstandardised coefficient reflects this causal law whereas the standardised coefficient obscures it (as cited by Kim and Ferree, 1981: Blalock, 1964, 1967; Cain and Watts, 1970; Duncan, 1975). Some argue that the use of "arbitrary" attitude scales necessitates use of standardised coefficients (Kim and Feree, 1981). However, the key factor is whether the variables are measured using identical scales across groups (Kim and Feree, 1981). This latter criterion was met in this study, meaning that direct comparisons can be made across groups using unstandardised coefficients (Kim and Ferree, 1981).

General Framework for Analysing Path Analysis Results

Before attempting to interpret the parameter estimates, tests of model fit are assessed for each model using the measures of CMIN, GFI, and AGFI. Then, Table 14 is examined for any broad differences between the younger and the older children's variable relationships. Next, total effects are presented to enable comparison of the central vs peripheral influence to which each group's Aad, Ab, and PI are subject. From total effects, an index of Net Central and Peripheral Effects is constructed. This provides a numerical measure of the central vs. peripheral influence that a particular group experiences in their formation of Aad, Ab, and PI, and allows involvement and assistance effects to be teased out. Post-hoc probing of statistical differences between individual paths is achieved by assessing the critical ratios for each relevant pair of parameters. This allows the identification of whether differences in index values are due to differing levels of peripheral influence, central influence, or both.

Tests of Model Fit

Table 12 displays the unstandardised regression weights derived from the final models for each group. All displayed estimates are significant at the .05 level (one-tail). Three measures are used to assess goodness of fit for each model. The CMIN (Chi-square) statistic tests the null hypothesis that the model is correctly specified. Due to p-values being all greater than 0.7, one can conclude with a high level of confidence that the models fit the data well. Similarly, the GFI figures are all very close to 1, indicating a near perfect

fit with the data. Finally, the AGFI measures, which take into account the degrees of freedom available for testing the models, all reveal a pleasing goodness of fit. Thus, one can proceed with meaningful interpretation of the parameter estimates.

Broad differences between the younger and older children

Examining Table 12, it is difficult to see differences between age groups due to the number of variables interacting. However, it is interesting to note that the ARG → Aad path is only significant for the younger assisted/high involvement group. A larger-scale difference is in the relationship between PC and Ab. It is significant for each of the younger groups but is not significant for any of the older groups. The Aad → Ab link is never significant for the younger children but always significant for the older children. An unexpected result occurs in that the relationship between PC and PI is negative for the older assisted/low involvement group. Another unexpected result is the negative relationship between ARG and Ab for the younger assisted/low involvement group. These latter two results may reflect an unintended influence from the assistance treatment-as discussed later.

Table 12. Unstandardised coefficients for significant paths. Blank cells represent non-significant paths (p > .05, one-tail).

YOUNGER	Asstd/High Inv	Asstd/Low Inv	Unasstd/High Inv	Unasstd/Low Inv
ARG → Aad	.467[b]			
PC → Aad	.751[a]	.727[a]	.873[a]	.1.446[a]
ARG → Ab	.584[a]	-.528[a]	.850[a]	.432[a]
PC → Ab	.778[a]	.1.107[a]	.279[b]	.887[a]
Aad → Ab				
ARG → PI		.583[b]	.614[b]	.545[a]
PC → PI				
Aad → PI	.383[b]	.525[a]		
Ab → PI	.863[a]		.469[b]	.668[a]
Measures of Fit				
CMIN	.204 (3, p=.977)	1.003 (4, p=.909)	2.187 (4, p=.701)	2.172 (4, p=.704)
GFI	.997	.983	.970	.974
AGFI	.986	.937	.888	.901
OLDER	**Asstd/High Inv**	**Asstd/Low Inv**	**Unasstd/High Inv**	**Unasstd/Low Inv**
ARG → Aad				
PC → Aad	.1.084[a]	.806[a]	1.025[a]	1.113[a]
ARG → Ab	.453[a]		.613[a]	
PC → Ab				
Aad → Ab	.534[a]	.708[a]	.582[a]	.623[a]
ARG → PI		.584[a]		.553[b]
PC → PI		-.563[b]		
Aad → PI		.501[b]		
Ab → PI	.552[a]	.294[b]	.461[a]	.436[b]
Measures of Fit				
CMIN	.886 (5, p=.971)	1.354 (3, p=.716)	2.618 (5, p=.759)	2.804 (5, p=.730)
GFI	.983	.976	.955	.957
AGFI	.95	.879	.866	.871

[a] p < .01 (one-tail)

[b] p < .05 (one-tail)

Total Effects

Table 13 presents the total effects as produced by Amos Version 3.62. These are defined as the direct effects plus the indirect effects (for a discussion of total effects see Fox, 1980). Thus, we can see the relative influence of ARG and PC in the formation of Aad, Ab, and PI. To enable easier comparison across groups an index of Net Central and Peripheral Total Effects was constructed, providing a numerical measure of the central vs. peripheral nature of each groups' formations of Aad, Ab, and PI. Simply, this index was constructed by multiplying the (absolute) total effects of ARG by positive 1 and the (absolute) total effects of PC by negative 1, and then summing them for Aad, Ab, and PI. Thus, index values less than 0 for any variable reveals that a predominantly peripheral influence and values greater than 0 indicate a predominantly central influence. Comparing index values across groups will facilitate conclusions about whether a particular group experienced more central route persuasion than another group in the formation of Aad, Ab, and PI. Index values are presented graphically in Figures 8 through to 10.

Table 13. Total effects (direct + indirect effects)

	YOUNGER				OLDER			
Group	**Antecedents/R^2**	**Aad**	**Ab**	**PI**	**Antecedents/R^2**	**Aad**	**Ab**	**PI**
AS/HV	PC	.751	.778	.959	PC	1.084	.579	.319
	ARG	.467	.584	.683	ARG	0	.453	.250
	Aad	*	0	.383	Aad	*	.534	.294
	Ab	*	*	.863	Ab	*	*	.552
	R^2	**.461**	**.623**	**.559**	**R^2**	**.732**	**.713**	**.223**
AS/LV	PC	.727	1.107	.381	PC	.806	.570	.008
	ARG	0	-.528	.583	ARG	0	0	.584
	Aad	*	0	.525	Aad	*	.708	.709
	Ab	*	*		Ab	*	*	.294
	R^2	**.303**	**.468**	**.408**	**R^2**	**.701**	**.359**	**.522**
UAS/HV	PC	.873	.279	.131	PC	1.025	.596	.275
	ARG	0	.850	1.013	ARG	0	.613	.283
	Aad	*	0	0	Aad	*	.582	.268
	Ab	*	*	.469	Ab	*	*	.461
	R^2	**.696**	**.609**	**.531**	**R^2**	**.732**	**.562**	**.257**
UAS/LV	PC	1.446	.887	.593	PC	1.113	.694	.302
	ARG	0	.432	.834	ARG	0	0	.553
	Aad	*	0	0	Aad	*	.623	.271
	Ab	*	*	.668	Ab	*	*	.436
	R^2	**.696**	**.622**	**.609**	**R^2**	**.756**	**.473**	**.350**

Formation of Aad

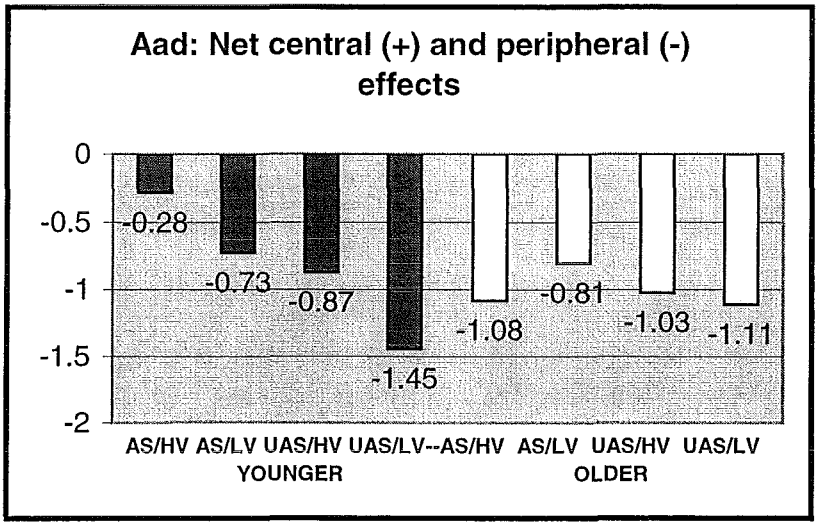
Younger children

Figure 8 reveals that Aad was formed predominantly from peripheral influence, and thus through the peripheral route to persuasion, for all groups. However, amongst the younger group, there seem to be differing levels of net peripheral influence. These are in the expected pattern, with the high involvement group reporting net effects less peripheral than those in the low involvement groups-for children in either assistance condition.

Assistance had the expected effect of producing net effects less peripheral in nature for those in each involvement condition.

Examining the critical ratios (Appendix 10) for differences between parameters reveals that the involvement effect experienced by those in the assisted condition is exclusively due to the high involvement group experiencing significantly greater central influence (some as opposed to none), as peripheral influence levels were comparable (c.r. = 0.08, $p > .45$). For those in the unassisted condition, the involvement effect was due to the lower involved group experiencing greater peripheral influence (c.r. = 2.782, $p < .01$). In fact, the unassisted/low involvement group experienced significantly greater peripheral influence than any other group-younger or older (c.r. = 1.556-3.097, p values $< .10$). The observed assistance effect experienced by those in the high involvement condition is solely attributable to the assisted group experiencing significantly greater central influence (some significant influence as opposed to none). For the low involvement groups, however, the assistance effect was due to the unassisted group experiencing significantly higher levels of peripheral influence (c.r. = 2.506, $p < .01$).

Fig 8. Formation of Aad



Older children

Examining the results for the older groups reveals a possible interaction between assistance and involvement. As expected, those in the unassisted condition reported a (slightly) more central Aad formation when highly involved. However, the children who experienced the assistance manipulation reported the opposite effect: those in the high

involvement group formed Aad through a more peripheral route than those in the low involvement group. (This phenomenon recurs at other points in the paper and plausible explanations are provided in the discussion section.)

The small involvement effect in the unassisted condition is not likely to be statistically significant as the levels of peripheral influence were not significantly different (c.r. = 0.485, $p > .30$) and no significant central influence was found for either group. The unexpected involvement effect in the assisted condition was solely due to the higher involved group experiencing significantly greater peripheral persuasion (c.r. = 1.525, $p < .10$). Comparing those in the high involvement condition, there were no significant differences in levels of peripheral influence between the assisted and unassisted groups (c.r. = 0.308, $p > .35$). However, in the low involvement condition, the unassisted children experienced significantly greater peripheral persuasion (c.r. = 1.803, $p < .05$).

Older vs younger

Comparing older to younger children in equivalent conditions reveals an interesting pattern. In three out of four cases the younger children's Aad formation was less peripheral than the older children's. In one case the younger children experienced significantly less peripheral persuasion (c.r. = 1.556, $p < .10$), and in another case they experienced both significantly less peripheral persuasion (c.r. = 1.372, $p < .10$) as well as greater central influence (some significant influence vs. none). This is an unexpected result, with previously discussed theory suggesting the converse.

Formation of Ab

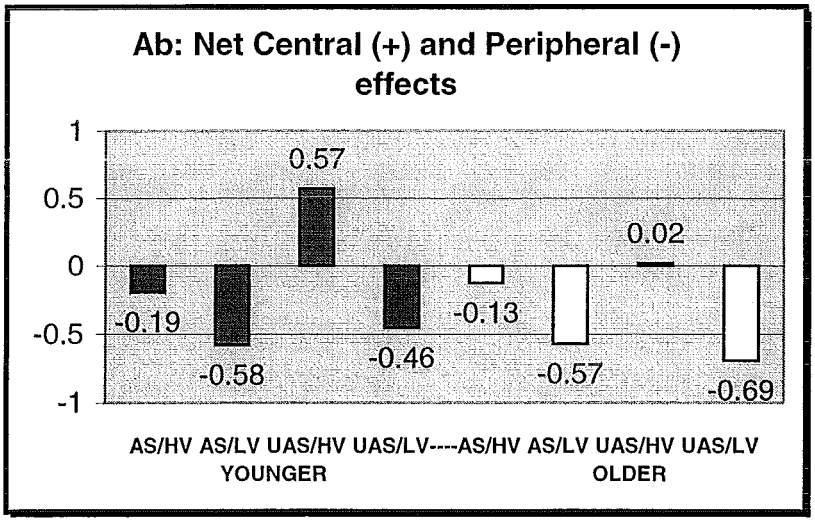
Younger children

Figure 9 reveals a consistent pattern of involvement effects for the younger children. Regarding the younger children in equivalent assistance conditions, those in the high involvement condition reported a more central Ab formation than those in the low involvement condition. However, assistance seemed to have the opposite effect to that intended by encouraging greater peripheral influence. This is evident in that the assisted children reported lower values than the unassisted children in comparable involvement conditions. Additionally, the assisted children's persuasion was predominantly peripheral whereas the unassisted children in the high involvement condition were predominantly influenced by central antecedents and thereby took the central route to persuasion. Thus,

contrary to expectations, younger children who were unaided revealed the ability to take the central route to persuasion, and consistent with ELM theory, they took the central route when highly involved with the advertising message.

Assessing critical ratios (Appendix 10) for differences between parameters reveals that the mechanism producing the involvement effect for the assisted children is a significantly greater central influence experienced by those in the high involvement group (c.r = 3.554, $p < .01$). In contrast, the involvement effect observed for the unassisted children was due to the high involvement group experiencing significantly greater central influence *and* a lesser peripheral influence (c.r = 1.787, $p < .05$; c.r = 2.543, $p < .01$ respectively).

Figure 9. Formation of Ab



Older children

A similar pattern of results emerges for the older children. Involvement had the consistent effect on persuasion of encouraging greater central route persuasion-for both those in the assisted and unassisted conditions. Again, assistance had the unintended effect of encouraging greater peripheral influence-but this time only for those in the high involvement condition. For those older children who were lowly involved with the advertising message, assistance reduced the level of peripheral influence. Thus, as hypothesised, the older children revealed the natural ability to take the central route to persuasion and did so when highly involved with the advertising message.

Assessing critical ratios for differences between parameters reveals that the involvement effect observed for the older children in the assisted condition was solely due to the high involvement group experiencing greater central influence than the low involvement group (some significant influence vs. none). Indirect peripheral effects (total effects in this case) seem to be roughly equivalent[4]. For those in the unassisted condition, the high involvement group had a more central Ab formation due to experiencing a higher level of central influence (some significant influence vs. none) and possibly[1] less indirect peripheral persuasion.

Older vs. younger

Comparing the older and younger children reveals a surprising result. For the more natural state of no assistance, the younger children experienced less net peripheral influence than the older children in both the low and high involvement conditions. In fact, the younger children experienced considerably more central route persuasion in the high involvement condition (c.r. = 1.552, $p < .10$). Assistance produced rather similar persuasion for both age groups, notably more peripheral in nature than that produced in the unassisted condition.

[4] In the absence of direct effects, subjective comparisons of total effects (simply indirect effects in these cases) are made due to critical ratios for total effect differences being unavailable.

Formation of PI

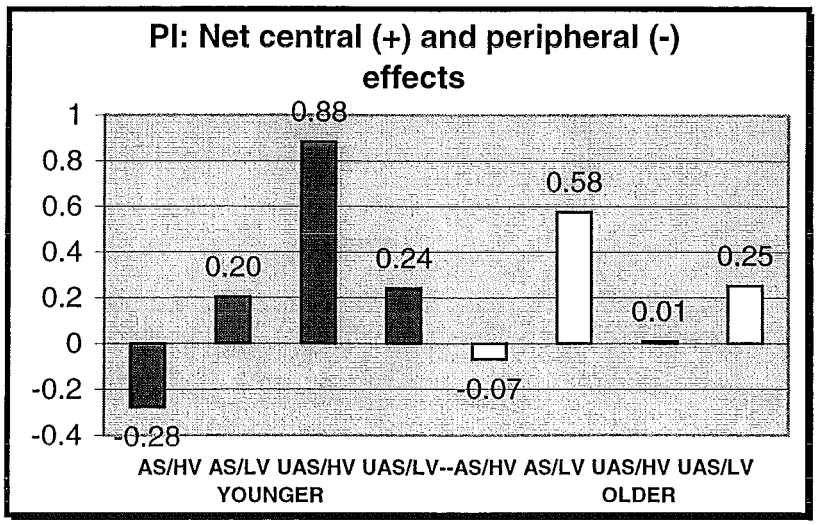
Younger children

Figure 10 reveals a less consistent pattern than that found for the formation of Aad and Ab. For the unassisted younger children, high involvement had the effect of encouraging net persuasion more akin to the central route. However, even those in the low involvement condition formed PI predominantly from central influence, thereby taking the central route to persuasion as defined in this paper. Thus, unaided younger children demonstrated the ability to take the central route to persuasion in the formation of PI-contrary to expectations. However, the children in the assisted condition took the peripheral route to persuasion when highly involved and took the central route to persuasion when less involved-the opposite effect to that expected.

Further analysis reveals that the involvement effect experienced by the younger children in the unassisted condition was most likely due to the high involvement group experiencing a greater indirect central influence and a lesser indirect peripheral influence[5].

The involvement effect experienced by those in the assisted condition was most likely a result of the high involvement group experiencing a considerably greater indirect peripheral influence, which dominated the slightly larger central influence that they also reported.

Figure 10. Formation of PI



[5] Critical ratios are not available for indirect effects so subjective comparisons are made instead.

Older children

The older children reported similarly unexpected effects when both unassisted and assisted. When unassisted, the higher involved group's PI formation was less central than the lower involved group's was, although it was still (marginally) representative of the central route to persuasion. Likewise, those in the unassisted condition/high involvement condition reported a net influence that was more peripheral in nature, inasmuch that they took the peripheral route to persuasion.

Further analysis reveals that the involvement effect observed for those in the assisted condition was due to the high involvement group experiencing greater indirect peripheral influence and lesser indirect central influence. The involvement effect reported by those in the unassisted condition seems to be mainly due to the low involvement group experiencing greater direct central influence (some significant influence vs. none); indirect peripheral influence is approximately equivalent.

Comparing the younger to the older children reveals the by now familiar result of the younger children experiencing persuasion more central in nature. Additionally, in the more natural state of non-assistance, the younger children were affected by differing involvement levels in a manner consistent with the ELM, whereas the older children experienced the reverse.

Chapter 6
DISCUSSION

6.1 General

The aim of this section is to provide a deeper and more holistic analysis of the results for the purposes of more clearly answering the research questions and testing the hypotheses. The hypotheses (reproduced below) make a distinction between processing that occurs while viewing, and attitude formation that occurs as a result of that processing. Three distinct measures were used to collect data pertinent to testing the hypotheses. As stated earlier, the path analyses assessed the formation of Aad, Ab, and PI using evaluations of central message arguments and evaluations of peripheral cues as independent variables: a measure that has been thought of as tapping the outcomes of processing (Lord et al, 1995). Additionally, analyses of argument recognition and thoughts produced during viewing assessed the actual cognitive processing undergone and teased out processing subtleties. The attitude formation aspect of the hypotheses is assessed using the path analyses. The path analyses allow one to specify whether particular groups took the central or peripheral route and also to compare groups on their levels of central and peripheral influence. Such conclusions are impossible to achieve with the analyses of the thoughts and argument recognition. This is because there is no specified level of argument recognition, or central/peripheral thought structure that allows one to conclude that the central or the peripheral route has been taken. However, the thought analyses and argument recognition are useful for the assessment of the actual cognitive processing undergone.

It is important to note that the ELM in its original conception is concerned primarily about the persuasive route taken in the formation of attitudes towards the object/issue of the persuasive communication. In the context of advertising, the advertised brand is the object of the communication, meaning that Ab is the attitude of interest. With further development in the area of attitude formation, the ELM has been extended to the development of PI, which is an attitude directly related to the advertised brand. Furthermore, it has been extended to the formation of Aad, the attitude towards the actual

persuasive communication (Lord et al, 1995). So, for the purposes of testing the hypotheses, each attitude is deemed relevant and will be considered in turn.

6.2 Hypothesis Testing

Hypothesis 1

A) *Children aged 7-11 do not have the ability to take the central route to persuasion unless aided. Therefore, unaided children aged 7-11 will take the peripheral route to persuasion irrespective of motivation to take the central route.*

B) *However, children aged 7-11 who are aided will take the central route to persuasion when so motivated, while those lacking such motivation will take the peripheral route to persuasion.*

Hypothesis 1A is partially supported. Aad was formed through the peripheral route to persuasion by the unaided children regardless of involvement with the advertising message. However, contrary to expectations, the younger children demonstrated an ability to take the central route to persuasion unaided: in the formation of Ab when highly involved with the ad, and in the formation of PI when highly *and* lowly involved with the ad.

Hypothesis 1B is only partially supported. As predicted, the aided children in the low involvement condition took the peripheral route to persuasion in the formation of Aad and Ab. However, the same children took the central route to persuasion for their construction of PI. In addition, the aided children who were highly involved unexpectedly took the peripheral route to persuasion in their formation of Ab, PI, and Aad.

Hypothesis 2

Children aged 11-16 have the ability to take the central route to persuasion unaided. Therefore, irrespective of assistance, they will take the central route when motivated to do so, while those lacking such motivation will take the peripheral route.

Hypothesis 2 is partially supported, with the unaided children in the high involvement condition taking the central route to persuasion in the formation of Ab and PI. Additionally, the lowly involved children took the peripheral route for the formation of Aad and Ab. However, contrary to expectations, PI was formed through the central route to persuasion by the children in the low involvement condition. Likewise, Aad was formed through the peripheral route to persuasion by those in the high involvement condition.

Hypothesis 3

Children aged 11-16 have greater natural (unaided) ability to take the central route to persuasion than children aged 7-11. Therefore, when motivated to take the central route, children aged 11-16(unaided) will conduct processing and attitude formation more representative of the central route than children aged 7-11(unaided) who are similarly motivated.

Hypothesis 3 is only partly supported. Regarding the processing undergone, the (unaided) younger children reported a central/peripheral thought structure equally as representative of the central route as the older children's was. This was manifest in generally equivalent numbers of central and peripheral thoughts, and C-P index values across age groups in equivalent conditions. However, in terms of the total number of thoughts produced during viewing, the older children produced significantly more in half the cases (equivalent conditions) and were equivalent in the other cases. This could be interpreted as the older children possessing more thinking capacity and thereby greater latent ability to take the central route. Additionally, the unaided older children demonstrated processing more representative of the central route by having better argument recognition in both high and low involvement conditions.

Regarding attitude formation, the unaided older children in the high involvement condition formed Aad, Ab, and PI in a manner *less* representative of the central route compared to the younger children. In fact, this occurred for the formation of Ab and PI in the low involvement condition as well. However, consistent with expectations, in the low involvement condition the older children did experience persuasion more akin to the central route than the younger children did.

Hypothesis 4

Children aged 7-11 who are assisted will have ability equivalent to the children aged 11-16 (who will not benefit from assistance) to take the central route to persuasion. Therefore, when motivated to take the central route, children aged 7-11 who are assisted will conduct processing and attitude formation in a manner as representative of the central route as those aged 11-16.

Assessment of Hypothesis 4 is limited due to the assistance manipulation not consistently having the desired effect. Apart from sometimes interacting with involvement, assistance did not significantly affect the actual processing of the ad-as measured by thoughts during viewing and argument recognition. However, assistance sometimes had unintended effects on the older children by producing attitude formation less representative of the central route. This effect is evident in the formation of Ab and PI in which high involvement coupled with assistance yielded attitude formation less central than that experienced by the unassisted older children. Likewise, the high-involved *younger* children reported less central attitude formation for Ab and PI when assisted. However, assistance did have the desired effect on the younger children's formation of Aad, encouraging a more central attitude formation than for any other group-in both high and low involvement conditions. Though generally, the younger children did not experience the desired benefits from the assistance manipulation. However, as previously discussed, the unassisted younger children were as able as the older children were to take the central route, possibly negating the need for hypothesis 4.

6.3 Interesting Findings

Initial analysis of the number of central and peripheral thoughts, and number of central thoughts in relation to the number of peripheral thoughts, indicated that the younger children were generally equivalent to the older children in comparable conditions. However, deeper analysis reveals that different mechanisms were producing the seemingly similar results. The younger children produced an invariable number of central thoughts, irrespective of level of involvement or assistance. In contrast, the number of central thoughts that the older children produced changed significantly depending on the level of

involvement. When unassisted, they produced a greater number of central thoughts when highly involved with the commercial, thus demonstrating more control over their central processing. However, although seemingly having less control over their central processing, the younger children produced a statistically equivalent number of central thoughts, which, from an ethical perspective, suggests that they may not be disadvantaged or more vulnerable.

The younger children demonstrated a natural ability to suppress peripheral thoughts when trying to learn about the product in the commercial (high involvement condition). In contrast, the older children did not report fewer peripheral thoughts in the high involvement condition when unassisted. In fact, they had a greater number of peripheral thoughts than the equivalent younger children.

In sum, the number of central thoughts in relation to peripheral thoughts is statistically similar for the younger and older children. This suggests that the younger and older children possess similar ability to take the central route to persuasion. However, the two age groups did process the commercial differently. Higher involvement had the effect of producing processing more indicative of the central route for both the younger and the older. For the older, it had the effect of increasing the number of central thoughts while the number of peripheral thoughts remained constant. In contrast, for the younger children higher involvement suppressed the number of peripheral thoughts while the number of central thoughts remained constant.

Argument recognition was static for the younger children, seemingly independent of either involvement or level of advertising knowledge. It is interesting that this result corresponds with a static number of central thoughts, as discussed previously. These two results viewed in light of each other provides strong support that the younger children performed rather fixed central processing, having little conscious control over the amount or type of central content elaborated upon. The older children generally performed better at recognising central message arguments. Additionally, they exhibited more differentiated processing, reporting greater argument recognition when more highly involved with the commercial.

The question remains whether the older children performed better at the argument recognition task because of higher elaboration of central message arguments or better memory processes. Argument *recognition* was deliberately tested rather than argument *recall* so that the younger children would not be taxed by the task. Thus, it is likely that

these results indicate that the older children had better abilities to elaborate upon and learn central message arguments.

Deeper analysis of the central thoughts produced during viewing supports this finding. Although central thoughts were classified as thoughts about the message arguments, product or product class, it could be argued that thoughts about the central message arguments represent the purest form of central route persuasion. Pooling the data across treatment conditions reveals that none of the younger children's central thoughts were about central message arguments. Instead, approximately 85% of their central thoughts were directed to the product and the remaining 15% to the wider product class. However, thoughts about central message arguments constituted nearly 9% of the older children's central thoughts. The remaining central thoughts were divided between thoughts about the specific product (59%) and thoughts about the product class (32%). Therefore, the older children conducted more elaboration of central message arguments, demonstrating a greater ability to take the purest and possibly most cognitively demanding central route to persuasion.

6.4 Ideas

One of the more puzzling results of this thesis is the partial rejection of hypothesis 3, which reflected the seemingly theoretically sound view that children in the younger age group possess less cognitive ability to elaborate central information and thereby take the central route to persuasion. Whilst the older children exhibited greater argument recognition and more elaboration of central message arguments, the actual attitude formation process did not reflect greater use of the central route to persuasion. In fact, the opposite was true, in many cases the younger children's persuasion process was more indicative of the central route. Why was this the case? It seems counter-intuitive that the older children possessed less cognitive ability to take the central route to persuasion. Indeed, it is very unlikely that such cognitive abilities *regress* over this age range, theory grounded in empirical evidence suggests the opposite.

In order to explain the above discrepancy a distinction must be made between elaboration of central message arguments and attitude formation. It is easy to assume a high degree of correspondence between the two acts: high levels of elaboration being

associated with central route persuasion-but this may not always be the case. A more discerning perspective is to view the processed content as providing the information on which attitudes can be based. Thus, subjects who conduct concurrent processing of central message arguments and peripheral cues (Hale, Lemieux, and Mongeau, 1995), have both central and peripheral information on which they can base their attitudes. ELM-type conceptualising would suggest that the type of information they base their attitudes on would depend on their motivation to take the central route. Thus, high involvement should lead to attitudes based on evaluations of central message arguments (the central route).

An explanation for the older children reporting greater elaboration but less central attitude formation than the younger children when highly involved might have something to do with the involvement manipulation. The involvement manipulation sought to achieve higher and lower levels of *involvement with the advertising message.* Yet involvement with the advertising message might have been confounded with involvement with the advertised product. Although the involvement with the ad treatment was designed to overcome differences in product involvement, product involvement might have dominated the children's responses at certain stages. It could be argued that product involvement is the more relevant form of involvement at the (product) attitude formation stage. Thus, even if the involvement with the advertising message treatment affected the amount of argument elaboration, product involvement might have taken pre-eminence at the attitude formation stage. So, if the older children were less involved with peanut butter, this may have caused them to use a relatively larger amount of peripheral information in their attitude construction.

Explanations aside, the overall conclusion of the analyses is that whilst the older children exhibited greater *ability* to elaborate central message arguments and thereby greater *potential* ability to take the central route, the younger children exhibited an equivalent and in some cases superior *tendency* to form attitudes via the central route to persuasion.

Chapter 7
CONCLUSIONS

7.1 Theoretical Implications

Contributions

This thesis makes many important contributions to the knowledge base in the academic field of Children and Advertising. It tests the most comprehensive model of children's cognitive persuasion yet proposed. In particular, it provides the first valid test of the ELM framework for children by explicitly assessing the impact of a motivation construct – in this case involvement with the advertising message - on the persuasion process. Triangulation of measures (thought listing, argument recognition, and attitude formation) provides a holistic and detailed description of the children's cognitive processing and resulting persuasion. The use of path analysis proved particularly useful for specifying whether subjects took the central or peripheral route to persuasion, yet has rarely been used for testing ELM-type frameworks (Lord et al, 1995 being a notable exception). The Index of Net Central and Peripheral Effects provided a precise numerical measure of relative influence of central and peripheral antecedents, and to my knowledge is original.

Motivation to elaborate central message arguments has generally been ignored in the children and advertising literature to date, the main emphasis being on their cognitive abilities to do so. As a consequence, children have been conceptualised as processing advertising in a static manner dependent only on their age-related cognitive abilities. A multitude of conclusions have been based on this premise, particularly in the cognitive defence stream of research. Thus, it is possible that children's processing of advertising has been misrepresented.

Involvement with the advertising message was found to be an important variable with regard to children's persuasion. In general, for both the children in the 7-11 and 11-16 age groups, higher involvement with the ad had the effect of inducing persuasion more representative of the central route, as documented for adult subjects (e.g. Petty and Cacioppo, 1983; Petty, Cacioppo, and Schumann, 1983). Thus, future research should take a more dynamic perspective of children's processing of advertising by realising the effect that involvement has on the persuasion process.

This thesis provides qualifications to the Aad→Ab→PI relationship for children that Phelps and Hoy found in their initial exploration (1996). Phelps and Hoy reported a significant relationship between Aad→Ab for both children aged 8/9 and children aged 11/12. This thesis found significant relationship between Aad and Ab for the older children, mainly aged 11/12, but not for the younger children mainly aged 8/9. Careful examination of the results of the Phelps and Hoy study reveals a similar although not as significant pattern. In the familiar brands condition, Aad explained 10% of Ab for the older children but only 5% for the younger children. Similarly, in the unfamiliar brands condition, Aad explained 37% of Ab for the older children but only 13% for the younger children. Thus, the link between Aad and Ab seems to strengthen with age. Future research could assess if this pattern extends to those younger than seven and older than 12. As found by Phelps and Hoy (1996), the relationship between Aad and PI was significant in some cases, for both the older and the younger children. This is a result not normally found in studies using adult subjects, as reported by Phelps and Hoy (e.g. MacKenzie, Lutz, and Belch, 1986; Phelps, 1989; Thorson and Page, 1989). This provides support to the suggestion that children should be treated as unique in both research and practice.

Limitations and Future Research

This thesis provides an exploratory investigation into the effect of involvement on children's processing and persuasion. The general pattern of results revealed that the involvement manipulation was successful in splitting the sample into groups higher and lower in involvement with the advertising message. However, the absolute levels of involvement achieved are not known. As an example, the children in the high involvement condition may not have been as highly involved as they potentially could have been. This allows the possibility that the children could have experienced more central persuasion than they did.

Motivation was operationalised as involvement with the advertising message rather than product involvement as it is more easily manipulated and therefore I could be more certain of obtaining the desired range in values. One would expect a high correspondence between these two constructs, although this may not always be the case. Operationalising motivation as product involvement is possibly more externally valid and would gain a more realistic range of values. Thus, further research could assess the effect that different involvement manipulations have on ranges of children's motivations to elaborate central message arguments.

Additionally, the effect of product involvement was not explicitly accounted for in this study. The involvement with the ad manipulation was expected to neutralise any confounding effects of product involvement. Parts of the manipulation involved instructing the children to ignore whether they liked the product and pretend that they wanted to learn the benefits of the product of interest (control), an instruction designed to simulate high (low) product involvement.

Although the assistance manipulation did enhance the children's level of advertising knowledge, this greater knowledge did not produce the desired effects on the variables of interest. In some cases the effects were in the desired direction of enhancing central route processing but in other cases the opposite occurred. Post-hoc assessment of the assistance manipulation reveals that this occurrence is understandable. The video (TV Ads) used in the manipulation was objective in tone and aimed to enhance knowledge of all components of advertising – peripheral cues included. It did not provide processing instructions, nor indicate that being persuaded by peripheral cues was less rational than being persuaded by central message arguments. What seems to have happened is that the assistance manipulation actually made the peripheral cues more salient, possibly in conjunction with the central message arguments. Thus, although the assistance manipulation check revealed that the children gained better processing knowledge from the manipulation, this did not always translate into better processing of the commercial. For example, the younger children reported rather invariable central processing. The hypothesis derived from information processing theory states that these children do not have the ability to take the central route unless assisted. Although the assisted younger children did not report greater central processing, this may have been due to the assistance being too weak or of the wrong type to support such an effect. Although it may have been ambitious to expect a 15-minute video to overcome children's information-processing deficits, the finding that it sometimes produced desirable effects is encouraging and suggests opportunities for more comprehensive programs. Future research could assess whether more comprehensive and better-directed assistance can produce enhanced central processing in children of all ages.

The descriptions of cognitive abilities provided by information processing theory are predicted to be most typical of the children in the middle of the age ranges. Thus, the younger children in the sample, being aged mainly 8/9, should have had the abilities predicted for the 7 – 11 age group. However, the 11-16 age group may have been unfairly represented as the corresponding children in the sample ranged from age 11 to 13, in the

lower bounds of the age range. Children aged 13 – 16 might have demonstrated greater abilities and tendencies to take the central route. Indeed, the question remains: at what age do children become adult-like in their responses to advertising? Future research could adopt a more continuous view of development and assess the advancement of children's processing abilities within the currently proposed stages.

This thesis aimed to develop a more comprehensive model of children's *cognitive* processing of advertising. As such, it excluded the role of affect in the persuasion process, which previous research has revealed to be important. Future research should aim to incorporate affect into a comprehensive cognitive processing model such as that proposed by this thesis.

Finally, as discussed in the Literature Review, the ELM provides a new perspective the concern of attitude durability, which is related to attitude-behaviour consistency. Petty and Cacioppo (1986) predict that attitudes formed through the central route are more enduring and resistant to change than those formed through the peripheral route to persuasion. Whether this applies to children is an important issue that future research should address.

7.2 Managerial Implications

The purpose of television advertising can be viewed as two-dimensional: to provide information about products and persuade consumers to buy those products. The mechanisms through which people are persuaded have typically been specified in the advertising literature as causal relationships between attitudes such as attitude toward the ad, brand, and purchase intention-and actual purchase behaviours. For this reason, marketers desire consumers to possess positive attitudes towards their brands, particularly attitudes that are strongly held and resist erosion from competing advertising. This is an even more pertinent goal for marketers advertising to children as research has suggested that children hold relatively fickle attitudes and may act inconsistently with prior attitudes in the face of opposition. The ELM suggests that durable attitudes are most likely attained through the central route to persuasion. Thus, marketers should be concerned about encouraging children to take the central route to persuasion. This thesis provides an

indication of how children aged 7 – 13 (16)[6] are persuaded and their potential to take the central route.

First, children aged 7 –13 (16) displayed the potential to take the central route to persuasion, but there were differences within that age band. The 8/9 year olds reported limits on the amount of central processing they could undertake, manifest in static argument recognition and number of central thoughts. However, they revealed the ability to suppress peripheral thoughts when they wanted to learn about the products benefits (high involvement with the advertising message). Within the age group, the 11/12 year olds reported more flexible central processing, producing more central thoughts and greater argument recognition when highly involved compared to when less involved. Compared to the younger children, the older children demonstrated greater argument recognition and produced a greater number of thoughts about central message arguments. However, in the formations of attitudes towards the ad, brand, and purchase intention the younger children reported greater central route persuasion than the older children. This result should be encouraging for marketers as it reveals that even children as young as seven have the potential to take the central route to persuasion. However, marketers cannot assume that the older children will take the central route to persuasion, even when highly involved with the ad. Neither age-group experienced pure central route persuasion in the formation of Aad, Ab, and PI, peripheral influence being reported in all cases. Therefore, advertisers should be concerned about increasing central route persuasion for the older as well as the younger age groups.

Advertisers are recommended to make central message arguments as prominent as possible, while providing effective peripheral cues that do not detract from the central message arguments. Thus, children desiring to learn about product benefits have the opportunity to do so, and children with little desire to take the central route can process the peripheral cues and be persuaded through peripheral avenues. History reveals that advertisers have tended to do the opposite. Children's ads have tended to entertain, usually through fast paced action and likeable animated characters (Guber & Berry, 1993). Advice from a respected agency is to make the commercial move because children are capable of absorbing much more information in 30 seconds than adults can absorb (Kraak and Pelletier, 1998). This presents advertisers with a dilemma. On the one hand, advertisers want to entertain the child viewers through the use of effective peripheral cues such as

[6] Even though the oldest child in the study was 13, information processing theory regards children aged 13-16 as having similar information processing abilities.

catchy music and involving action so that they attend to and enjoy the ad. On the other hand, advertisers want the children to be persuaded by the ad, particularly in a central route manner so that enduring attitudes are constructed. However, extensive elaboration of peripheral cues inhibits central route persuasion. Conversely, having few peripheral cues might result in the children not even attending to the ad, also inhibiting central route persuasion. Thus, an advertiser must walk the fine line between providing too few peripheral or allowing peripheral cues to dominate the central message arguments.

A potential strategy involves the spatial separation of peripheral cues and central message arguments. A commercial employing this strategy would initially gain audience attention with effective peripheral cues but at a later point allow the central message arguments to take pre-eminence. Of course, most advertisers attempt to make the central message arguments stand out. But often, central message arguments are presented with heavy peripheral support. As discussed above, this may be counterproductive in the case of advertising to children.

Another option available to the marketing community is to educate children about advertising. At first thought this may seem counter-intuitive, but not when considered from the ELM perspective of attempting to ensure that the central route to persuasion is taken. Advertising education of the required type and magnitude could enhance children's abilities to take the central route. Such education could involve teaching children to analyse the central message arguments contained in advertising should they want to find out the real benefits of advertised products. Thus, children who want to learn about the product could take the central route to persuasion while those who are less interested in the product could take the peripheral route to persuasion. Marketers should realise that knowledge about the tools of their trade does not necessarily inhibit persuasion. After all, most adults have a reasonable understanding of advertising and are still persuaded.

For much of this thesis, central message arguments have been viewed as *rational* bits of information, such as tangible product attributes. Of course, this is not always the case, and the ELM allows for this by defining central message arguments as bits of information that present the true merits of a product/issue-from the perspective of the receiver. The true merits of a particular product might be emotional in nature and advertising should seek to convey this. In this case, the central message arguments might consist of moving music or pertinent images that in rational-based advertising would be considered as peripheral cues. The ELM framework suggests that marketers should know what information dimensions are important for people highly involved with their product

category. It has been noted that children are not one market: in terms of needs and wants they are three or four segmented markets (Schneider, 1987). Different dimensions of a product could be important for different segments of a child market. For example, in the case of a toy, a three year old might value the functional attributes while an eight year old might be more concerned with the cool image associated with the toy. Thus, a peripheral cue for one segment might be a central message argument for another segment. This type of variation may be extreme in the children's market, given that children's needs and wants change rapidly as they physically and cognitively develop.

According to McNeal (1998), the future for advertising to children might be in the form of socially acceptable and informative advertising that clearly explains product benefits. As the range of products targeted towards children continues to expand to include more rational (as opposed to emotional) products such as banking services, advertisers will become more interested in effectively conveying rational bits of information. This thesis details how children aged 7 – 13 (16) process rational central message arguments and highlights opportunities for advertisers to increase central route persuasion.

7.3 Public Policy Implications

As conceptualised by Roberts and colleagues (1980), the critical question in the advertising and children debate is the fairness of the persuasion process given children's abilities and limitations in processing and evaluating commercials. Or as the Federal Trade Commission (1978) described it: whether or not children process commercials in such a way that they are able to comprehend, evaluate, and possibly discount them, as adults are presumed to do (cited by Roberts, 1983). The basis of much opposition to advertising directed toward children, and indeed, for Sweden's ban of such advertising to children under 12, is that children are too naïve to distinguish between advertising and genuine programming ("From an advertiser's", 2001; Brabbs, 2000). In my opinion, such a focus on children's ability to distinguish advertising from programming is simplistic, and ignores many other aspects of children's abilities to process advertising. Additionally, there is evidence to suggest that young children can understand the purpose of commercials and distinguish them from entertainment. At a recent conference, Dr Brian Young reported that his research had found that five to seven-year-olds saw advertising as an information

provider and promoter of brands, and that three-quarters of eight-year-olds fully understood its persuasive nature and commercial process (Brabbs, 2000). This evidence is largely ignored by the critics who obviously experience significant emotional conflict regarding children and advertising –children's abilities to distinguish advertising and programming being a precarious handhold in an otherwise slippery slope. As Professor Furnham (2000) politely puts it:

> The advertising to children debate is alas often marked by over simplification and naivety. It becomes a political debate uninformed by the important and relevant research and data available.

This thesis provides a fresh perspective on the debate by applying the ELM to children's processing of television advertising. The ELM perspective provides a more holistic, and in my opinion more valid assessment of the fairness of advertising to children. From the ELM perspective, the desire of critics that children process advertising in an evaluative manner translates to the children taking the central route to persuasion. The ELM specifies the conditions under which this is likely to happen, namely, when motivation and ability to elaborate central message arguments are present. The benefits of children taking the central route are postulated to be more rationally grounded attitudes that are more enduring – leading to better attitude-behaviour consistency. This thesis outlines the theoretical abilities and motivation that children between the ages of 3 and 16 possess in this matter. Furthermore, it attempts to empirically answer the question of whether or not children of varying ages can and do take the central route to persuasion.

The children in the younger age-group, mainly aged 8/9, demonstrated an ability to take the central route to persuasion in the formation of attitude toward the brand and purchase intention. Likewise, the children in the older age group, mainly aged 11/12, revealed such an ability, although their actual processing was more indicative of peripheral route persuasion than the younger group. The younger children were unexpectedly sophisticated in their processing of advertising, revealing greater ability to evaluate and base attitudes on evaluations of central message arguments than theory and past research would suggest. The older children were less sophisticated in their ability to take the central route than expected, although they did report a reasonable amount of central processing. What does this contribute to the debate? That depends on whether one considers the level of central processing undertaken and central persuasion experienced by the children

undertook to be satisfactory or inadequate. This might well be a subjective judgement, but critics should at least gain some encouragement from the finding that children aged as young as seven do conduct central processing and do have the ability and tendency to form attitudes predominantly from evaluations of central message arguments. Thus, the picture of the child as vulnerable and mindless as some critics paint for us appears to be distorted, at least in the context of processing television advertising. To the contrary, the findings of this thesis indicate that children as young as seven conduct surprisingly sophisticated processing and attitude formation, which suggests little basis for an outright ban of children's advertising.

Instead, this thesis provides support for the recommendation that a public policy solution should involve both the "child side" of the debate and the "television side" of the debate (Armstrong and Brucks, 1988). That is, attempts should be made to enhance children's information-processing skills in conjunction with attempts to make television advertising more conducive to central route processing. One way of assisting the children directly is education about advertising. Children revealed the ability to learn about advertising: a well-designed 15-minute video considerably enhanced their knowledge of the purpose of advertising, as well as knowledge of specific techniques and how to process advertising in a wise fashion (take the central route). As expected, the younger children had a less sophisticated understanding of the purpose of television advertising than the older children but the educational video boosted this understanding to equivalent levels. Furthermore, the attained level of knowledge was reasonably sophisticated, reflecting both informational and persuasive dimensions of the purpose of television advertising. This indicates that simple educational programs would likely enhance children's knowledge of advertising, including the ability to distinguish between programming and advertising, thus negating the expounded basis of a complete ban on children's advertising. However, if children's ability to critically evaluate advertising messages to the detriment of being persuaded by peripheral elements is of importance, then the education must be more comprehensive and directed to this purpose than that incorporated in this research. This education could be provided via school curriculum or parental coaching in "how to be a wise consumer".

Additionally, advertisers should attempt to make their commercials as conducive as possible to central route processing. As discussed in the Managerial Implications section, making it easier to process central message arguments might result in more central route persuasion, resulting in more enduring attitudes. This might involve making central

message arguments more prominent or peripheral cues less dominant. Public policy could provide recommendations regarding the use of peripheral cues and the presentation of central message arguments.

The options discussed above seem more valid than a complete ban on advertising directed toward children. The formulated basis for such a ban –children's inability to distinguish between advertising and programming – is flawed in light of recent (and not so recent) empirical evidence. Rather, there is the opportunity to equip children with better consumer skills, which would benefit them in other areas of their lives and help protect them from other forms of persuasive communication. Additionally, providing advertising of better quality provides children access to marketplace information, and allows them to critically evaluate the offerings and thereby be persuaded through fairer means. Rather than a partial solution less than satisfactory to most of the participants (Armstrong and Brucks, 1988), there is the potential for a solution pleasing to all parties - the children, their guardians, and those with commercial interests – although it may well require shifts to more sophisticated perspectives.

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LIST OF APPENDICES

Appendix 1. Children's information processing abilities

Piaget's Theory of Cognitive Development (Piaget, 1953; Ward, Wackman, and Wartella, 1977, Raju and Lonial, 1990)	Information Processing Theory (Roedder, 1981)
Stage	*Processing type*
1. Sensorimotor stage (0-2 years): • The infants behaviour is not governed by "thought", but by set behaviour patterns (schema).	**1. Limited processors (0-7)[1]:** • The child is unable to use storage and retrieval strategies. • The child is unable to control amount of processing effort dedicated toward processing incidental information.
2. Preoperational stage (2-7): • The child's behaviour is still closely linked to perception. • Thinking about objects and ideas is poorly organised. • Only the dominant features of stimuli are used to make Evaluations. • Tendency to focus on that which is immediately perceivable. • Tendency to focus on a limited amount of information at a particular time.	**2. Cued processors (7-11):** • The child is able to use storage and retrieval strategies, but only if prompted. • The child can control the extent of incidental processing, but only if cued.
3. Concrete operations stage (7-11): • The child is developing logical thinking skills. • The child can think conceptually and organise (concrete) ideas well. • More able to mediate incoming stimuli. • The child can focus on several dimensions at once.	**3. Strategic processors (11 and older):** • These have the ability to use storage and retrieval strategies at will. • They can actively suppress the learning of incidental information to ensure learning central information.
4. Formal operations stage (11 and older): • The child develops the ability to think abstractly. • All aspects of a stimulus are used, as are reason and logic.	

Appendix 2. Descriptions of Stimuli

TV Ads

A description given by the Learning Essentials, the suppliers of the video:

"For every ad we see, a target audience has been defined and researched in great detail. Dialogue, characters, setting, music, colours and words on screen are examined as well as the use of repetition, reinforcement, logos and slogans as techniques of persuasion. Our presenters create their own ad to illustrate these different features."

Plays

A description given by the Learning Essentials, the suppliers of the video:

"In this age of videos and big budget action movies, one of the oldest forms of artistic entertainment still survives – the stage play. In this program we examine the structure of the making of the play. Our two presenters enter the theatrical world of "Macbeth" and interact with the characters and performance. We look at dialogue, gestures, costume, make-up, sets, music and lighting. The program includes interviews with the director and two key actors who talk about their stage moves, character development and performance."

Kraft Peanut Butter commercial

Action: The basic plot of this commercial is a little girl preparing a peanut butter sandwich. As she opens the cupboard she has the choice of Kraft Peanut Butter or another peanut butter brought to life by an Elvis character who belts out a persuasive tune. The girl resists the charms of the "oily and unhealthy" peanut butter and instead spreads Kraft Peanut Butter on her sandwich. The central message argument presented both as words on screen and voice-over: Kraft Peanut Butter-never oily, never dry.

People: Girl aged (9) and peanut butter characters.

Music: Elvis type rock. Quite prominent and catchy – upbeat and lifting.

Colours: Bright and cheery blue and yellow supporting product packaging.

Audio script:
Peanut Butter Character: Hey you need oil
Girl: No way, this tastes heaps better
Peanut Butter Character: But baby it's slick...(launches into song about greasy peanut butter)
Girl: I like Kraft peanut butter, that's because it's never oily and never dry.
VO: Kraft peanut butter: never oily, never dry.

Appendix 3. Assistance manipulation check and advertising knowledge quiz

Knowledge of TV Advertising

1. What is the purpose of TV ads?

2. What things do TV ads have in them to tell you about the product and make you want the product?

3. Pretend that you want to get a new toy and you see an ad for a toy. If you want to find out how good the toy is, which of the following would help you?

   a. How good looking the people in the ad are

   b. How nice the music is

   c. The slogan for the toy

   d. A famous person in the ad

   e. The words that are spoken in the ad

   f. How much you enjoy the colours in the ad

   g. The words that appear on the screen

4. If you wanted to find out about the toy, *how much* of your attention would you have to give the ad?

1	2	3	4
None	A little	A lot	All

5. Why do ads have music?

6. What is a slogan?

7. How much do TV ads tell you about the advertised products?

1	2	3	4
Nothing	A little	A lot	Everything

8. Do TV ads tell you the truth about the advertised products?

1	2	3	4
Never	Sometimes	Most of the time	All the time

Appendix 4. Control group quiz

Knowledge of Plays

1. What is the purpose of a Play?

2. A Play uses many different things to help tell a story. Write down as many as you can.

3. Why is music used in Plays?

4. Why is make-up used in Plays?

5. Why do actors use gestures (hand movements)?

6. What is the "Set" in a Play?

Appendix 5. Main measures

1. (AMI manipulation check)

A. When you watched the Kraft Peanut Butter ad, did you watch it…

As if you wanted to learn about Kraft Peanut Butter?

1 2 3 4 5
|----------|----------|----------|----------|
not at all definitely

B. When you watched the Kraft Peanut Butter ad, did you watch it…

As if you wanted to learn the benefits of Kraft Peanut Butter?

1 2 3 4 5
|----------|----------|----------|----------|
not at all definitely

C. When you watched the Kraft Peanut Butter ad, did you watch it…

As if you wanted to learn what Kraft Peanut Butter had to offer?

1 2 3 4 5
|----------|----------|----------|----------|
not at all definitely

2. (Thoughts produced during viewing)

What were you thinking about during the ad? In the space below, write down all the things you were thinking about during the ad.

3. (Argument Recognition)

Please read the following claims made about Kraft Peanut Butter. Some of these claims were in the ad but some were not in the ad. A claim can be either spoken or presented as words on the screen. For each claim listed below, please tell me whether it appeared in the ad. If you think it DID appear in the ad then circle "1". If you think that it DID NOT appear in the ad then circle "2". If you do not know whether it appeared in the ad then circle "3"

A. Tastes heaps better (than oily peanut butter).

1 2 3
|----------|----------|
DID appear in ad DID NOT appear in ad Don't know

B. Kraft Peanut Butter is nice and crunchy.

1 2 3
|----------|----------|
DID appear in ad DID NOT appear in ad Don't know

C. Kraft Peanut Butter is never oily and never dry.

1 2 3
|----------|----------|
DID appear in ad DID NOT appear in ad Don't know

D. Kraft Peanut Butter is really good for you.

1 2 3
|----------|----------|
DID appear in ad DID NOT appear in ad Don't know

4. (ARG)

Here are two claims that appeared in the ad:

1. Kraft Peanut Butter tastes heaps better than oily peanut butter.

2. Kraft Peanut Butter is never oily and never dry.

A. How <u>much do these claims matter</u>?

1 2 3 4 5
|----------|----------|----------|----------|
don't matter at all matter very much

B. How much do these claims help you to <u>understand the product?</u>

1 2 3 4 5
|----------|----------|----------|----------|
help me do not help me understand
understand the product a lot the product at all

C. How much do these claims make you <u>want the product?</u>

1 2 3 4 5
|----------|----------|----------|----------|
do not make me make me want the
want the product at all product a lot

D. Please tell me how much you <u>believe</u> these claims:

1 2 3 4 5
|----------|----------|----------|----------|
do not believe them at all believe them a lot

5. (PC)

Please tell me what you thought of the <u>music</u> in the ad:

A. 1 2 3 4 5
|----------|----------|----------|----------|
do not like it at all like it a lot

B. 1 2 3 4 5
|----------|----------|----------|----------|
boring fun

C. 1 2 3 4 5
|----------|----------|----------|----------|
great stupid

D. 1 2 3 4 5
|----------|----------|----------|----------|
dull exciting

Please tell me what you thought of the <u>people</u> in the ad:

E. 1 2 3 4 5
|----------|----------|----------|----------|
do not like them at all like them a lot

F. 1 2 3 4 5
|----------|----------|----------|----------|
fun boring

G. 1 2 3 4 5
|----------|----------|----------|----------|
stupid great

H. 1 2 3 4 5
|----------|----------|----------|----------|
dull exciting

Please tell me what you thought of the <u>colours</u> in the ad:

I. 1 2 3 4 5

like them a lot — do not like them at all

J. 1 2 3 4 5

boring — fun

K. 1 2 3 4 5

stupid — great

L. 1 2 3 4 5

dull — exciting

Please tell me what you thought of the <u>action (what happened)</u> in the ad:

M. 1 2 3 4 5

do not like it at all — like it a lot

N. 1 2 3 4 5

boring — fun

O. 1 2 3 4 5

stupid — great

P. 1 2 3 4 5

dull — exciting

6. (Aad)

Please tell me what you think/feel about the ad <u>overall</u>:

A. 1 2 3 4 5
|----------|----------|----------|----------|
hate it like it a lot

B. 1 2 3 4 5
|----------|----------|----------|----------|
boring fun

C. 1 2 3 4 5
|----------|----------|----------|----------|
stupid great

D. 1 2 3 4 5
|----------|----------|----------|----------|
exciting dull

7. (Ab)

Please tell me what you think/feel about <u>Kraft Peanut Butter:</u>

A. 1 2 3 4 5
|----------|----------|----------|----------|
it is bad it is good

B. 1 2 3 4 5
|----------|----------|----------|----------|
very nice not very nice

C. 1 2 3 4 5
|----------|----------|----------|----------|
I do not like it at all I love it

D. 1 2 3 4 5
|----------|----------|----------|----------|
I think it is useless I think it is really useful

E. 1 2 3 4 5
|----------|----------|----------|----------|
boring fun

F. 1 2 3 4 5
|----------|----------|----------|----------|
great stupid

8. (PI)

If your parents asked you what type of peanut butter you wanted, how likely is it that you would ask your parents to buy Kraft Peanut Butter?

Please show your answer on the scale below:

A. 1 2 3 4 5

|----------|----------|----------|----------|

not at all likely very likely

If your parents asked you to buy some peanut butter, would you buy Kraft peanut butter?

Please show your answer on the scale below.

B. 1 2 3 4 5

|----------|----------|----------|----------|

definitely buy never buy

Appendix 6. Thought Classification Scheme

Coding Classification	Definition/Example
Relevance of thought	
Relevant	Thoughts connected to advertising or the product class. "I want one."
Irrelevant	Thoughts having no connection to advertising or the product class. "I don't like school."
Target of thought	
Product	Thoughts about the specific product. "I think (the product) is cool!
Product Class	Thoughts about the product class. "I don't like fizzy drink."
Message Argument	Thoughts about the specific arguments presented in the ad. "Does chocolate really give me more energy?"
Executional elements	Thoughts about the elements of the execution e.g. music, action. colours, or imagery not connected to central message arguments. "That music rocks!"
Ad communicators	Thoughts about the actors or voices in in the ad. "The kids have heaps of friends".
Other etc	Any thoughts not classified above.
Origin of thought	
Message-originated	Restatement or paraphrase of verbal or pictorial ad message. Little or no use of prior knowledge. "The fruit drink has a full days supply of vitamin C."
Modified message-originated	Reactions to, qualifications of, or illustrations of the material in the ad. Uses both memory of ad and some prior knowledge. "The robots are probably hard to stack" (in the ad the robots are shown stacking themselves).

Continued on next page...

Origin of thought (cont..)	
Recipient-generated, Cognitive	Thoughts that express pertinent beliefs not directly traceable to specific points in the ad. Use of prior knowledge. "That fruit drink has lots of sugar" (sugar not mentioned in the ad).
Recipient-generated, Emotional	Thoughts that express pure affect toward the product, ad, communicator, or some other relevant object or issue. "I hate orange juice!"
Polarity of thought	
Positive	Favourable thoughts. "I really like this product"
Negative	Unfavourable thoughts. "I don't like the kids in the ad"
Neutral	Thoughts that are neither favourable nor unfavourable. "My friend has one."
Combined classifications	
Central thought	Thoughts of any polarity and origin that are targeted toward the product, product class, or the message arguments.
Peripheral thought	Thoughts of any polarity and origin that are targeted toward the executional elements of the ad, the ad communicators, or any other object irrelevant to the message arguments.

Appendix 7. Examination of data used in path analyses

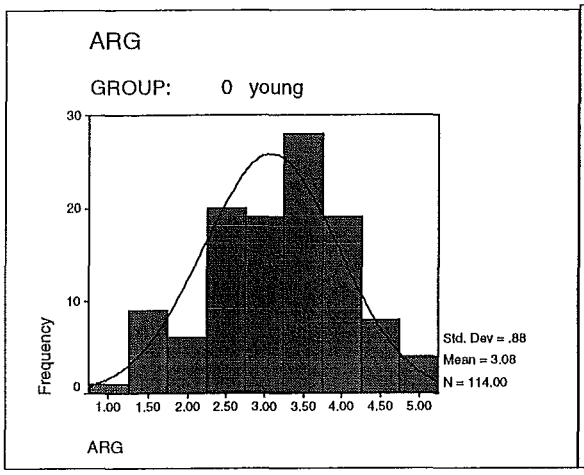
Group			Statistic	Std error
Younger	ARG	Skewness	-.206	.226
		Kurtosis	-.274	.449
	PC	Skewness	-.482	.226
		Kurtosis	-.447	.449
	AAD	Skewness	-.095	.226
		Kurtosis	-.740	.449
	AB	Skewness	-.224	.226
		Kurtosis	-.822	.449
	PI	Skewness	.118	.226
		Kurtosis	-1.480	.449
Older	ARG	Skewness	-.481	.250
		Kurtosis	.177	.495
	PC	Skewness	-.253	.250
		Kurtosis	-.363	.495
	AAD	Skewness	-.041	.250
		Kurtosis	-.474	.495
	AB	Skewness	-.025	.250
		Kurtosis	-.361	.495
	PI	Skewness	.072	.250
		Kurtosis	-.914	.495

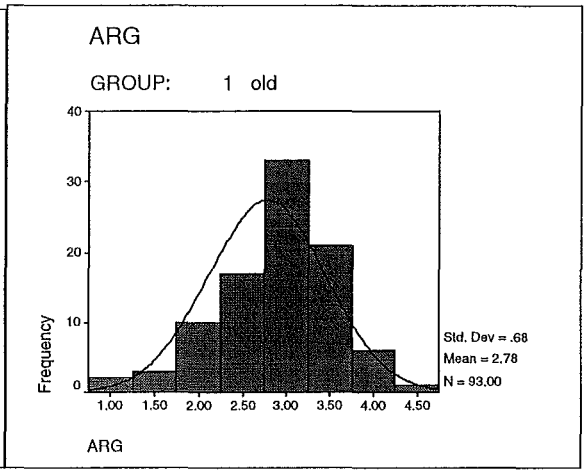
Tests of Normality

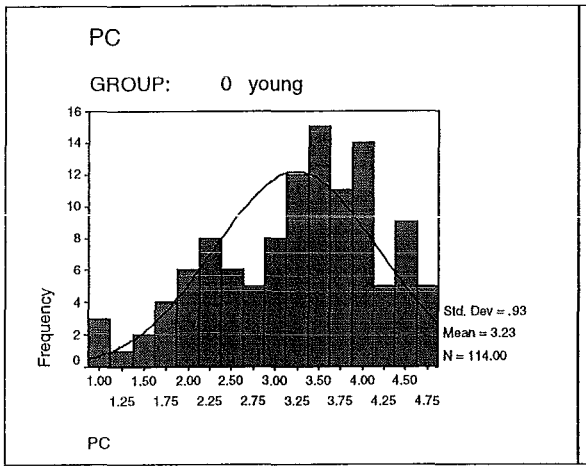
		Kolmogorov-Smirnov		
GROUP		Statistic	df	Sig.
young	NOTHTS	.348	114	.000
	NOCENTHT	.300	114	.000
	NOPERTHT	.278	114	.000
	CMINP	.220	114	.000
	ARG	.095	114	.012
	PC	.096	114	.012
	AAD	.087	114	.034
	AB	.077	114	.090
	PI	.149	114	.000
old	NOTHTS	.246	93	.000
	NOCENTHT	.308	93	.000
	NOPERTHT	.228	93	.000
	CMINP	.246	93	.000
	ARG	.138	93	.000
	PC	.075	93	.200
	AAD	.095	93	.036
	AB	.099	93	.026
	PI	.144	93	.000

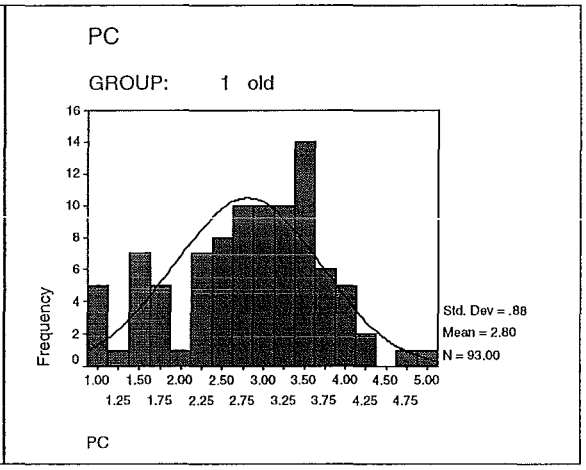
* This is a lower bound of the true significance.

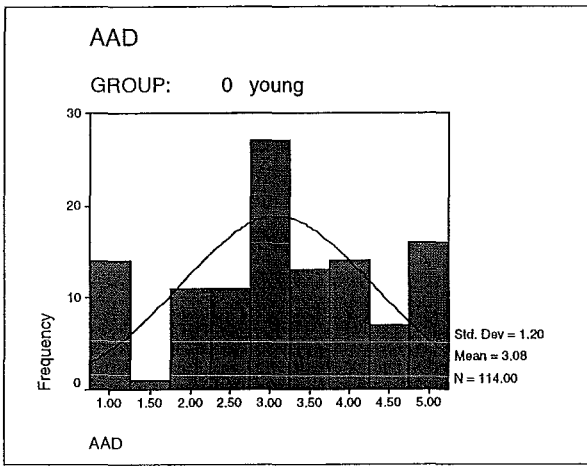
a Lilliefors Significance Correction

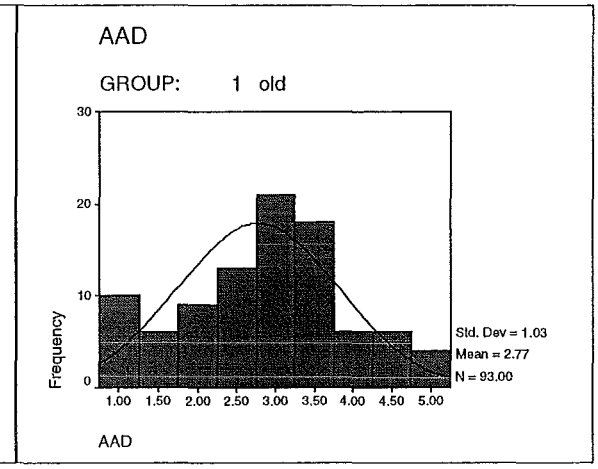

ARG
GROUP: 0 young
Frequency
Std. Dev = .88
Mean = 3.08
N = 114.00
ARG

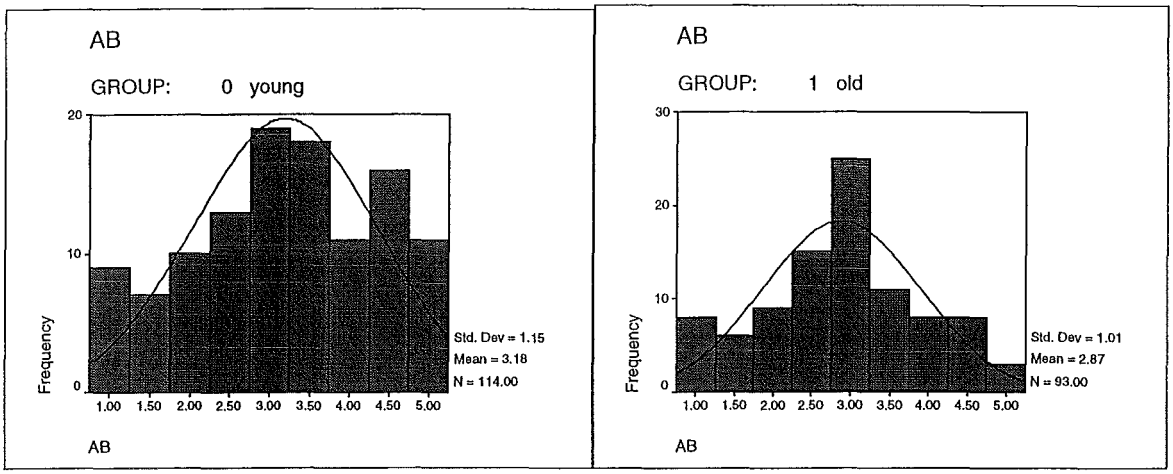

ARG
GROUP: 1 old
Frequency
Std. Dev = .68
Mean = 2.78
N = 93.00
ARG

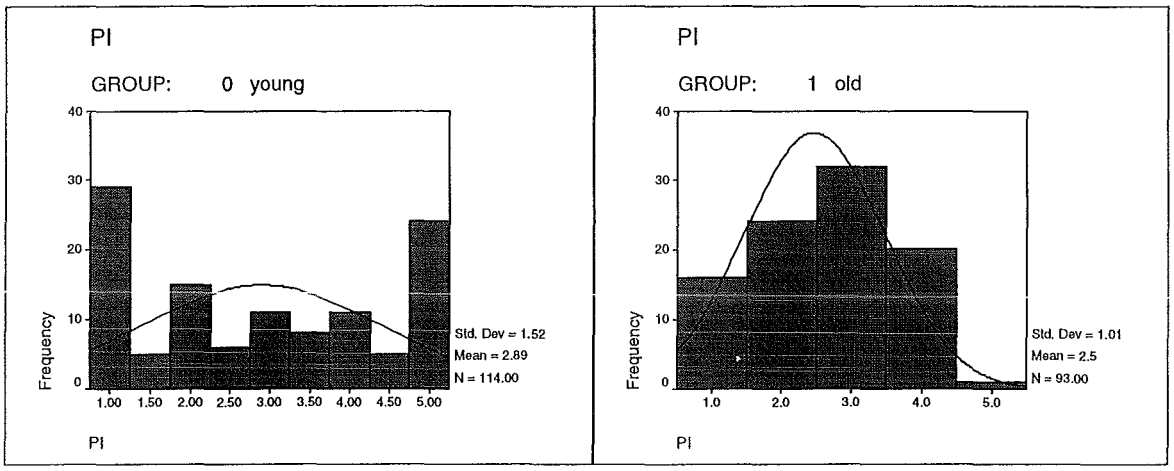

PC
GROUP: 0 young
Frequency
Std. Dev = .93
Mean = 3.23
N = 114.00
PC


PC
GROUP: 1 old
Frequency
Std. Dev = .88
Mean = 2.80
N = 93.00
PC


AAD
GROUP: 0 young
Frequency
Std. Dev = 1.20
Mean = 3.08
N = 114.00
AAD


AAD
GROUP: 1 old
Frequency
Std. Dev = 1.03
Mean = 2.77
N = 93.00
AAD


AB
GROUP: 0 young
Frequency
Std. Dev = 1.15
Mean = 3.18
N = 114.00
AB
AB
GROUP: 1 old
Frequency
Std. Dev = 1.01
Mean = 2.87
N = 93.00
AB


PI
GROUP: 0 young
Frequency
Std. Dev = 1.52
Mean = 2.89
N = 114.00
PI
PI
GROUP: 1 old
Frequency
Std. Dev = 1.01
Mean = 2.5
N = 93.00
PI

Appendix 8. Reliability Analysis for multi-item scales used in path analyses

Evaluations of Central Message Arguments

		Mean	Std Dev	Cases
1.	ARGEVA	2.9179	1.2611	207.0
2.	ARGEVC	2.8261	1.2690	207.0
3.	ARGEVD	2.8792	1.0883	207.0
4.	ARGEVBR	3.1498	1.1582	207.0

Correlation Matrix

	ARGEVA	ARGEVC	ARGEVD	ARGEVBR
ARGEVA	1.0000			
ARGEVC	.3732	1.0000		
ARGEVD	.2722	.2378	1.0000	
ARGEVBR	.3342	.1796	.2416	1.0000

Reliability Coefficients 4 items

Alpha = .6019 Standardized item alpha = .6005

Evaluations of Peripheral Cues

		Mean	Std Dev	Cases
1.	MUSCR	3.0495	1.1399	207.0
2.	PPLSCR	2.8998	1.1721	207.0
3.	CLRSCR	3.0797	1.0406	207.0
4.	ACTSCR	3.1256	1.2336	207.0

Correlation Matrix

	MUSCR	PPLSCR	CLRSCR	ACTSCR
MUSCR	1.0000			
PPLSCR	.6487	1.0000		
CLRSCR	.5499	.5491	1.0000	
ACTSCR	.6087	.5241	.4252	1.0000

Reliability Coefficients 4 items

Alpha = .8298 Standardized item alpha = .8307

Attitude Toward the Ad (Aad)

		Mean	Std Dev	Cases
1.	AADDR	2.9324	1.2942	207.0
2.	AADA	3.0145	1.2903	207.0
3.	AADB	2.9662	1.4017	207.0
4.	AADC	2.8454	1.2715	207.0

Correlation Matrix

	AADDR	AADA	AADB	AADC
AADDR	1.0000			
AADA	.6547	1.0000		
AADB	.5928	.7008	1.0000	
AADC	.6514	.7056	.6970	1.0000

Reliability Coefficients 4 items

Alpha = .8883 Standardized item alpha = .8891

Attitude Toward the Brand

		Mean	Std Dev	Cases
1.	ABA	3.2670	1.3763	207.0
2.	ABC	3.0485	1.3353	207.0
3.	ABD	2.9709	1.2761	207.0
4.	ABE	2.9854	1.3233	207.0
5.	ABBR	3.0922	1.3127	207.0
6.	ABFR	2.8495	1.3258	207.0

Correlation Matrix

	ABA	ABC	ABD	ABE	ABBR	ABFR
ABA	1.0000					
ABC	.7361	1.0000				
ABD	.6460	.5791	1.0000			
ABE	.6343	.6078	.6006	1.0000		
ABBR	.6991	.7210	.5287	.5035	1.0000	
ABFR	.5809	.6407	.6260	.5966	.5378	1.0000

Reliability Coefficients 6 items

Alpha = .9060 Standardized item alpha = .9058

Purchase Intention

		Mean	Std Dev	Cases
1.	PIA	2.6359	1.4511	206.0
2.	PIBR	2.7718	1.4250	206.0

Correlation Matrix

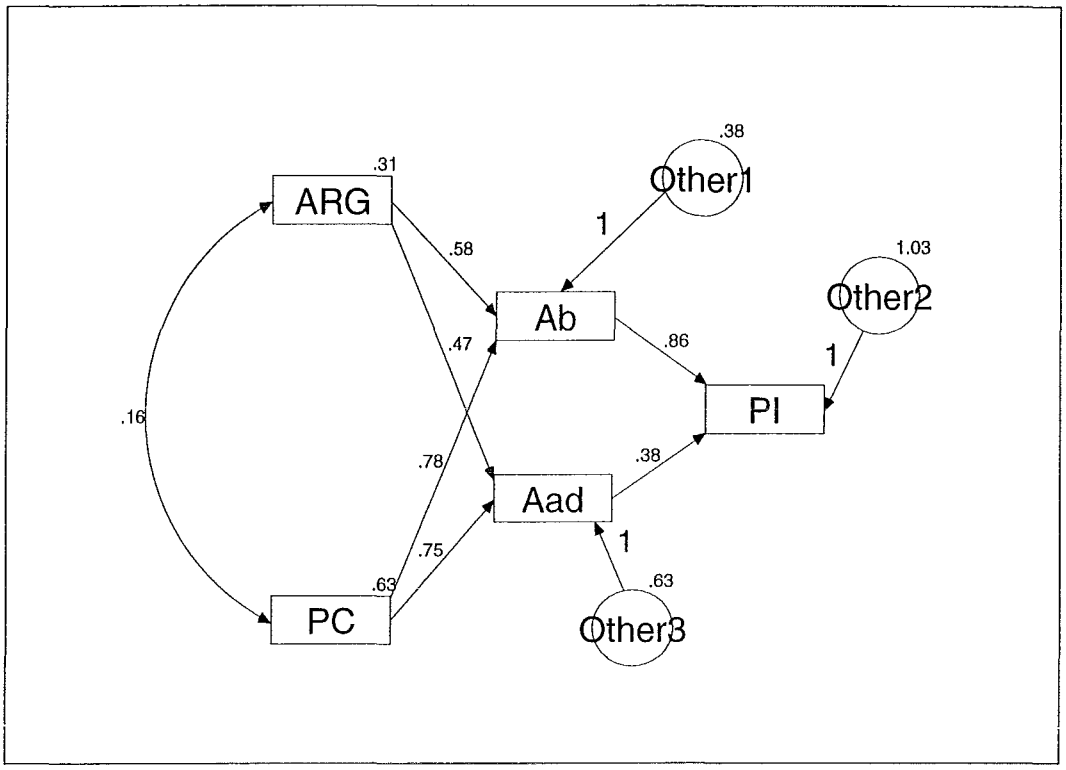
	PIA	PIBR
PIA	1.0000	
PIBR	.7074	1.0000

Reliability Coefficients 2 items

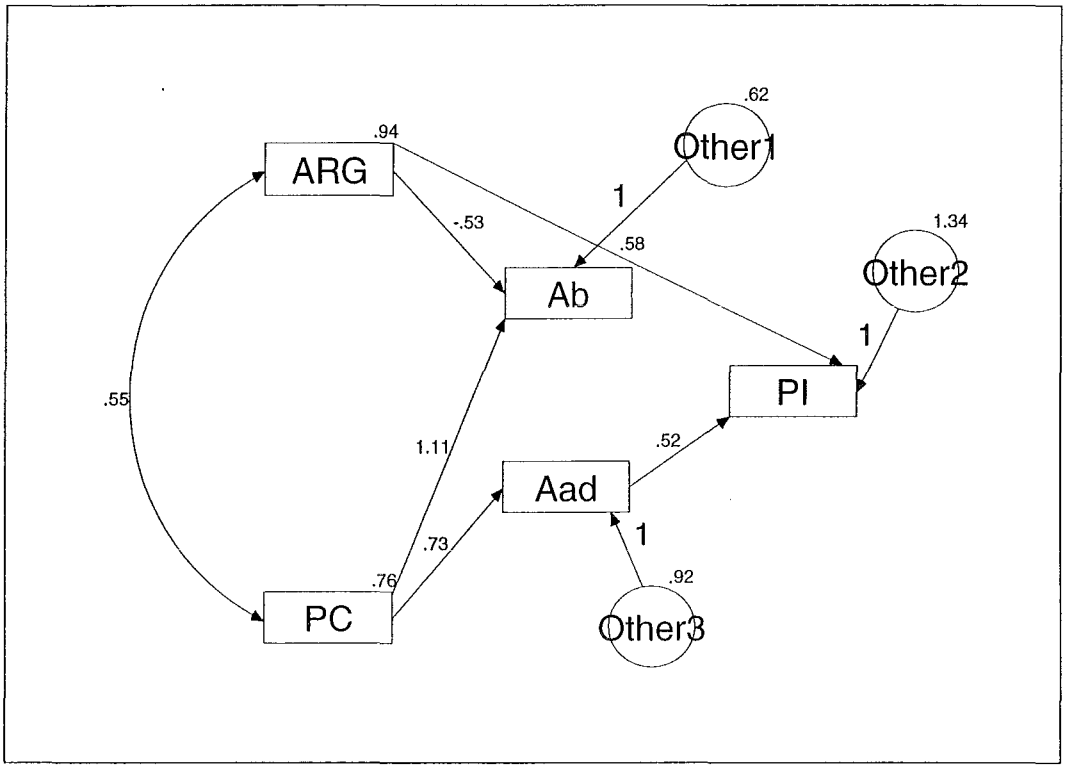
Alpha = .8286 Standardized item alpha = .8286

Appendix 9. Final group specific models (C Class)

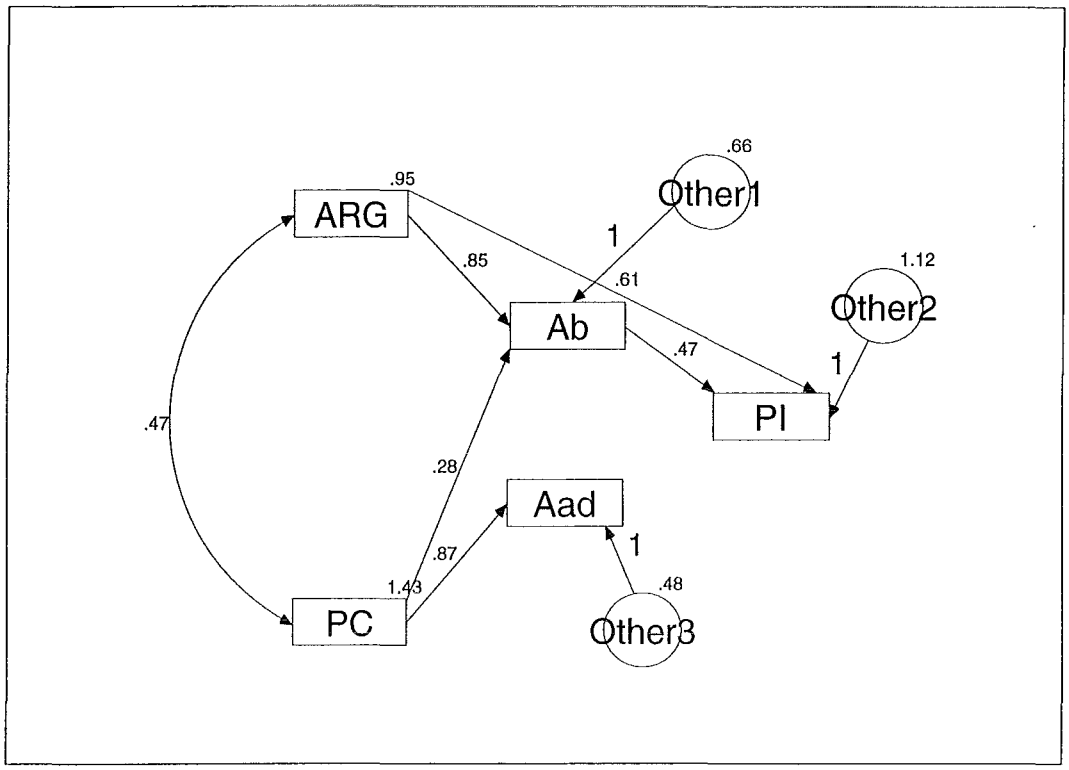
Younger AS/HV



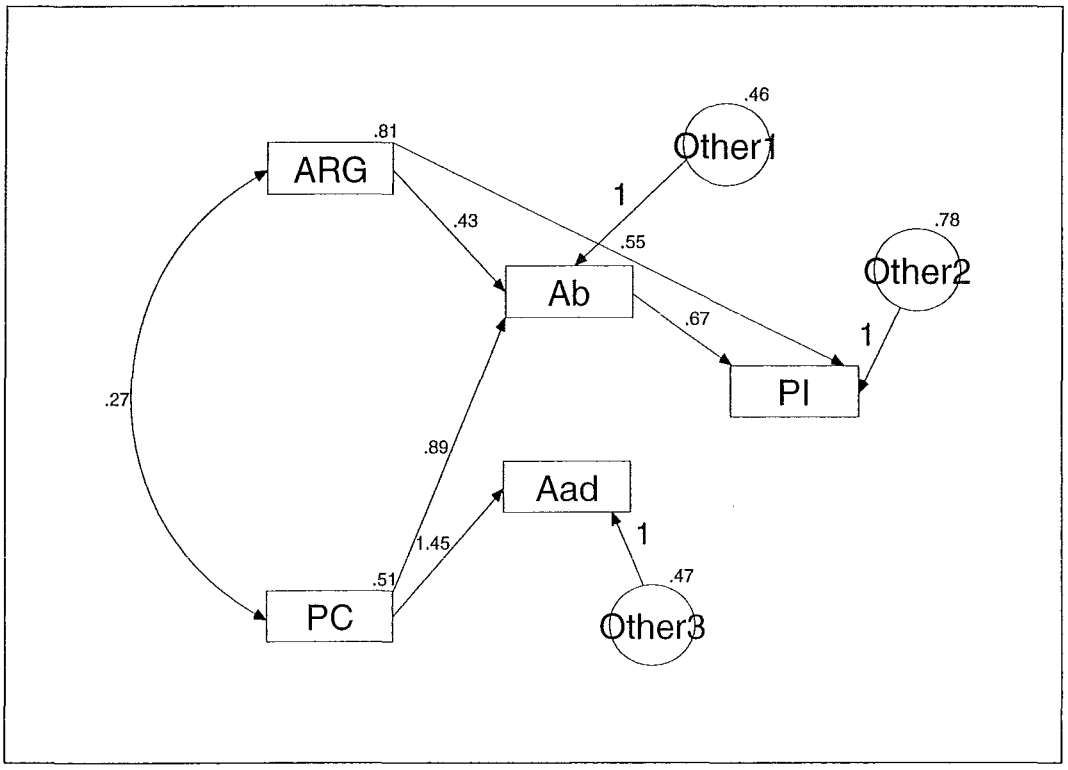
Younger AS/LV



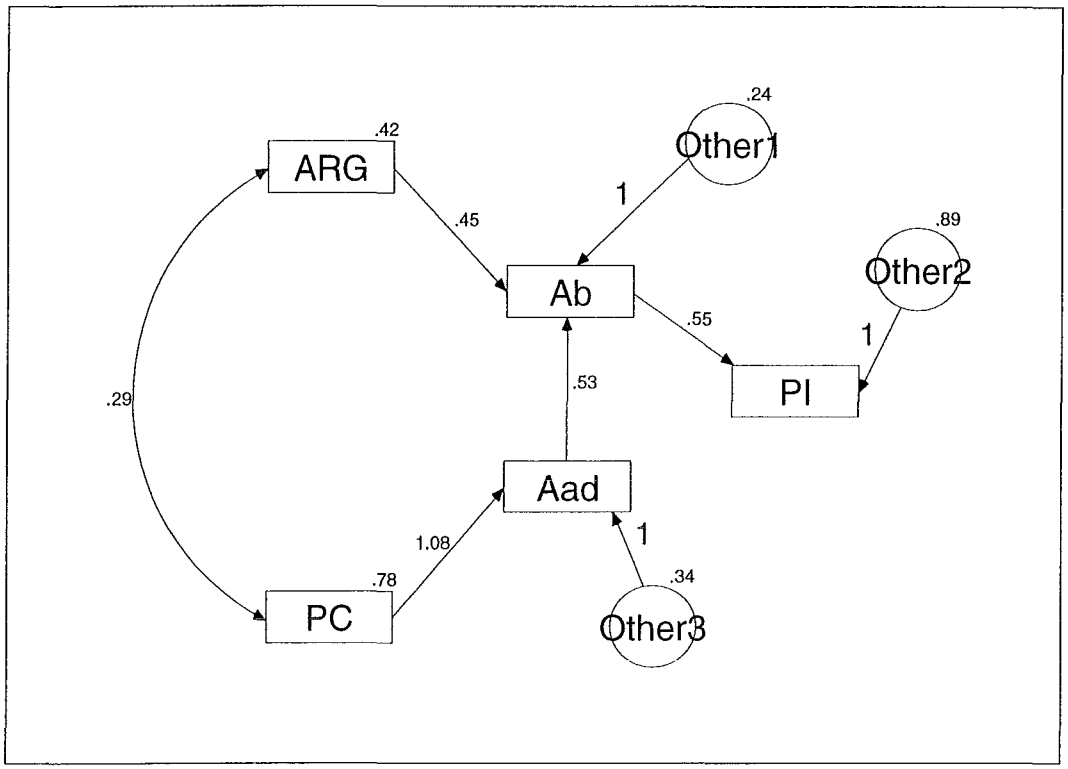
Younger UAS/HV



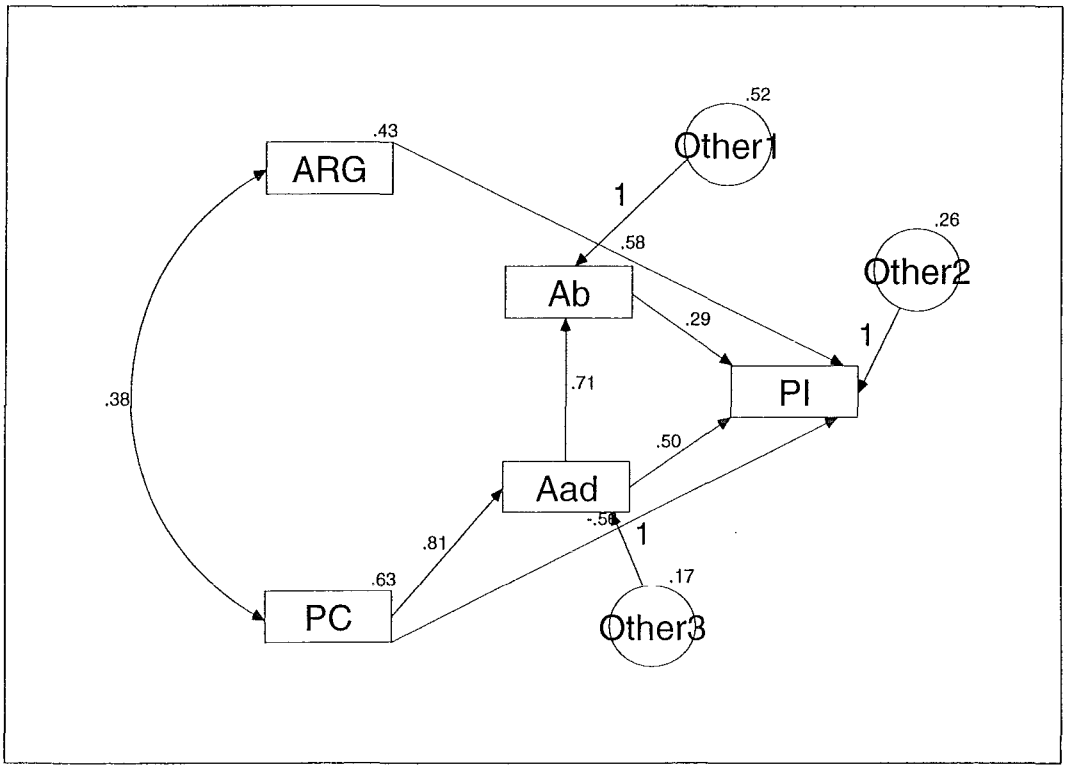
Younger UAS/LV



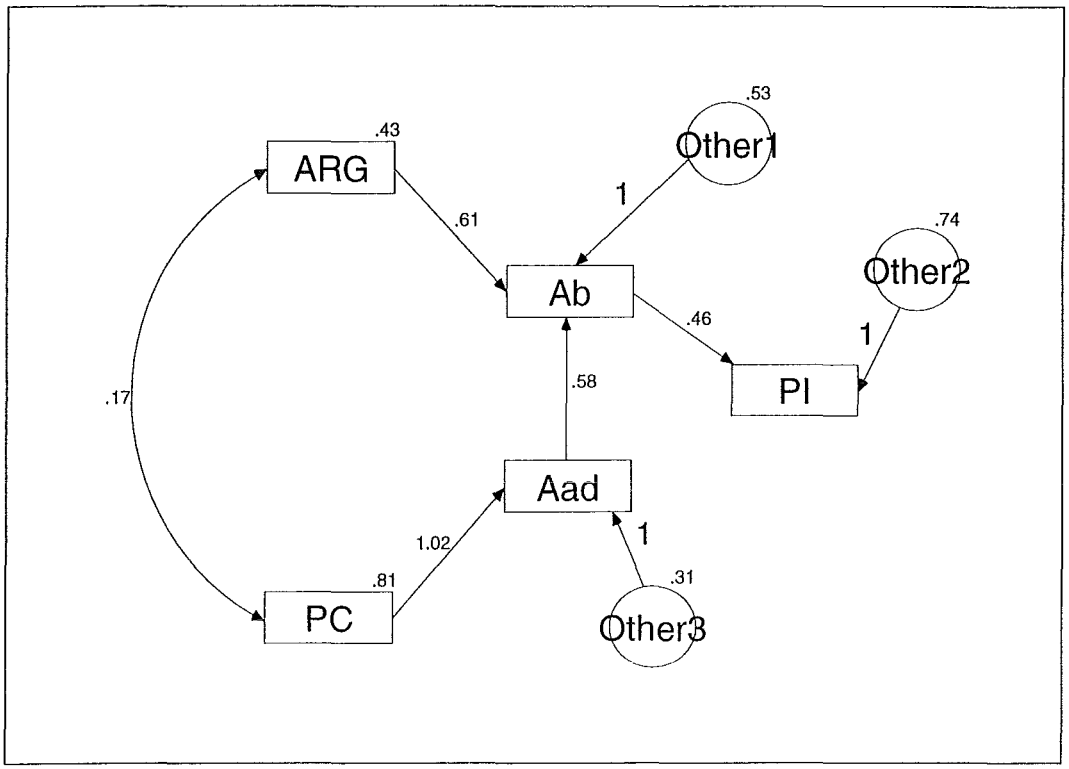
Older AS/HV



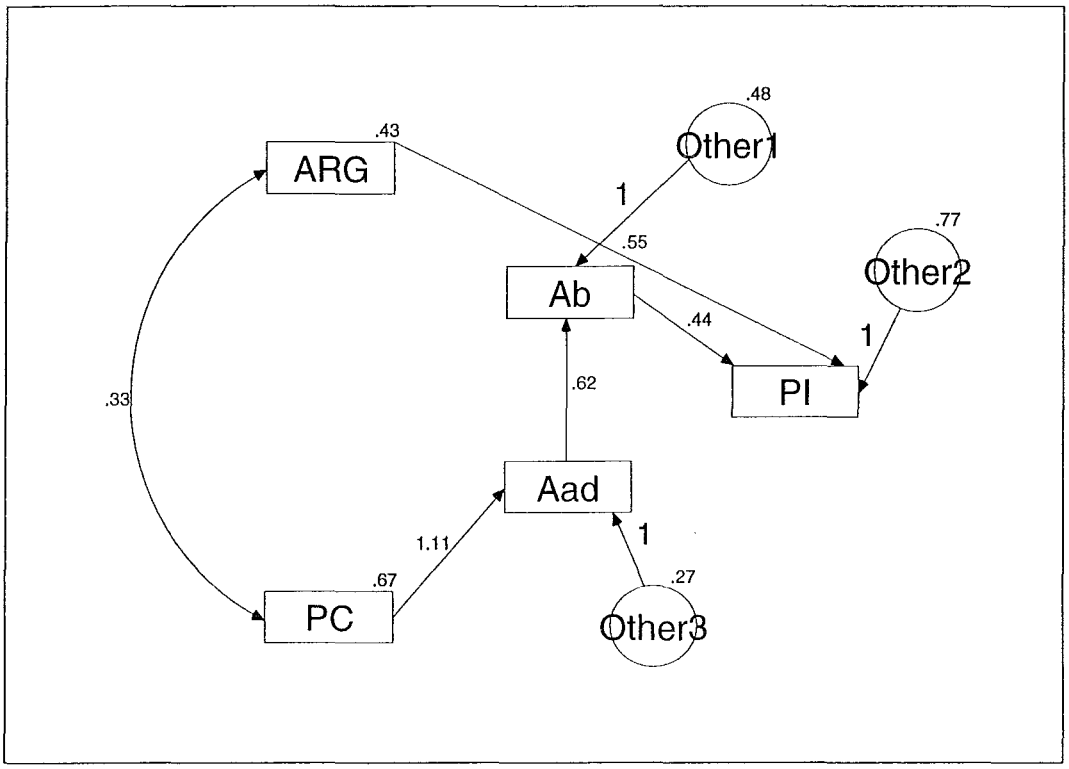
Older AS/LV



Older UAS/HV



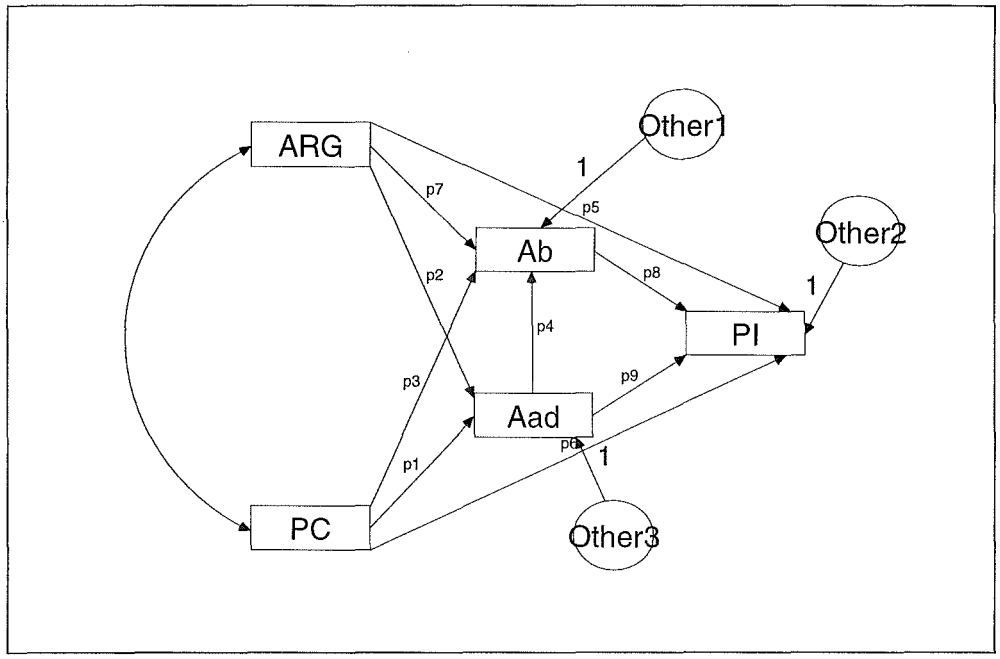
Older UAS/LV



Appendix 10. Critical ratios for differences between parameters

The table below reports critical ratios for pair wise comparisons between groups on specified parameters. Critical ratios > 1.645 are significant at the .05 level (one-tail) and significant at the .10 level (one-tail) if > 1.282. Entries are bolded if significant or approaching significance. N/A refers to a comparison that is not available due to one or both of the parameters being non-existent (non-significant). Fig ? displays an example of a full model with parameter labels.

Example of full model with parameter labels



Critical ratios for pairwise comparisons of groups on specified parameters

PC→ Aad (P1)	(Y) AS/HV	(Y) AS/LV	(Y) UAS/HV	(Y) UAS/LV	(O) AS/HV	(O) AS/LV	(O) UAS/HV	(O) UAS/LV
(Y) AS/HV	*	*	*	*	*	*	*	*
(Y) AS/LV	-0.08	*	*	*	*	*	*	*
(Y) UAS/HV	0.537	0.571	*	*	*	*	*	*
(Y) UAS/LV	**2.657**	**2.506**	**2.782**	*	*	*	*	*
(O) AS/HV	**1.372**	**-1.324**	**-1.163**	**1.616**	*	*	*	*
(O) AS/LV	0.241	0.308	0.417	**3.097**	**-1.525**	*	*	*
(O) UAS/HV	**1.155**	**1.126**	0.874	**1.942**	-0.308	**1.254**	*	*
(O) UAS/LV	**1.548**	**1.475**	**1.417**	**-1.556**	0.151	**1.803**	0.485	*

ARG→Aad (P2)	(Y) AS/HV	(Y) AS/LV	(Y) UAS/HV	(Y) UAS/LV	(O) AS/HV	(O) AS/LV	(O) UAS/HV	(O) UAS/LV
(Y) AS/HV	*	*	*	*	*	*	*	*
(Y) AS/LV	N/A	*	*	*	*	*	*	*
(Y) UAS/HV	N/A	N/A	*	*	*	*	*	*
(Y) UAS/LV	N/A	N/A	N/A	*	*	*	*	*
(O) AS/HV	N/A	N/A	N/A	N/A	*	*	*	*
(O) AS/LV	N/A	N/A	N/A	N/A	N/A	*	*	*
(O) UAS/HV	N/A	N/A	N/A	N/A	N/A	N/A	*	*
(O) UAS/LV	N/A	N/A	N/A	N/A	N/A	N/A	N/A	*

PC→Ab (P3)	(Y) AS/HV	(Y) AS/LV	(Y) UAS/HV	(Y) UAS/LV	(O) AS/HV	(O) AS/LV	(O) UAS/HV	(O) UAS/LV
(Y) AS/HV	*	*	*	*	*	*	*	*
(Y) AS/LV	**1.125**	*	*	*	*	*	*	*
(Y) UAS/HV	**-2.351**	**-2.869**	*	*	*	*	*	*
(Y) UAS/LV	0.446	-0.704	**2.543**	*	*	*	*	*
(O) AS/HV	N/A	N/A	N/A	N/A	*	*	*	*
(O) AS/LV	N/A	N/A	N/A	N/A	N/A	*	*	*
(O) UAS/HV	N/A	N/A	N/A	N/A	N/A	N/A	*	*
(O) UAS/LV	N/A	N/A	N/A	N/A	N/A	N/A	N/A	*

ARG→Ab (P7)	(Y) AS/HV	(Y) AS/LV	(Y) UAS/HV	(Y) UAS/LV	(O) AS/HV	(O) AS/LV	(O) UAS/HV	(O) UAS/LV
(Y) AS/HV	*	*	*	*	*	*	*	*
(Y) AS/LV	**-3.554**	*	*	*	*	*	*	*
(Y) UAS/HV	0.939	**4.82**	*	*	*	*	*	*
(Y) UAS/LV	-0.571	**3.564**	**-1.787**	*	*	*	*	*
(O) AS/HV	-0.46	**-3.395**	**1.552**	-0.087	*	*	*	*
(O) AS/LV	N/A	N/A	N/A	N/A	N/A	*	*	*
(O) UAS/HV	0.087	**3.446**	-0.783	-0.629	0.524	N/A	*	*
(O) UAS/LV	N/A	N/A	N/A	N/A	N/A	N/A	N/A	*

PC→ PI (P6)	(Y) AS/HV	(Y) AS/LV	(Y) UAS/HV	(Y) UAS/LV	(O) AS/HV	(O) AS/LV	(O) UAS/HV	(O) UAS/LV
(Y) AS/HV	*	*	*	*	*	*	*	*
(Y) AS/LV	N/A	*	*	*	*	*	*	*
(Y) UAS/HV	N/A	N/A	*	*	*	*	*	*
(Y) UAS/LV	N/A	N/A	N/A	*	*	*	*	*
(O) AS/HV	N/A	N/A	N/A	N/A	*	*	*	*
(O) AS/LV	N/A	N/A	N/A	N/A	N/A	*	*	*
(O) UAS/HV	N/A	N/A	N/A	N/A	N/A	N/A	*	*
(O) UAS/LV	N/A	N/A	N/A	N/A	N/A	N/A	N/A	*

ARG→ PI (P5)	(Y) AS/HV	(Y) AS/LV	(Y) UAS/HV	(Y) UAS/LV	(O) AS/HV	(O) AS/LV	(O) UAS/HV	(O) UAS/LV
(Y) AS/HV	*	*	*	*	*	*	*	*
(Y) AS/LV	N/A	*	*	*	*	*	*	*
(Y) UAS/HV	N/A	0.076	*	*	*	*	*	*
(Y) UAS/LV	N/A	-0.109	-0.179	*	*	*	*	*
(O) AS/HV	N/A	N/A	N/A	N/A	*	*	*	*
(O) AS/LV	N/A	0.003	0.075	-0.116	N/A	*	*	*
(O) UAS/HV	N/A	N/A	N/A	N/A	N/A	N/A	*	*
(O) UAS/LV	N/A	-0.077	-0.144	0.021	N/A	-0.082	N/A	*

Aad→Ab (P4)	(Y) AS/HV	(Y) AS/LV	(Y) UAS/HV	(Y) UAS/LV	(O) AS/HV	(O) AS/LV	(O) UAS/HV	(O) UAS/LV
(Y) AS/HV	*	*	*	*	*	*	*	*
(Y) AS/LV	N/A	*	*	*	*	*	*	*
(Y) UAS/HV	N/A	N/A	*	*	*	*	*	*
(Y) UAS/LV	N/A	N/A	N/A	*	*	*	*	*
(O) AS/HV	N/A	N/A	N/A	N/A	*	*	*	*
(O) AS/LV	N/A	N/A	N/A	N/A	-0.754	*	*	*
(O) UAS/HV	N/A	N/A	N/A	N/A	0.264	-0.498	*	*
(O) UAS/LV	N/A	N/A	N/A	N/A	-0.53	-0.348	-0.209	*

Aad→PI (P9)	(Y) AS/HV	(Y) AS/LV	(Y) UAS/HV	(Y) UAS/LV	(O) AS/HV	(O) AS/LV	(O) UAS/HV	(O) UAS/LV
(Y) AS/HV	*	*	*	*	*	*	*	*
(Y) AS/LV	0.467	*	*	*	*	*	*	*
(Y) UAS/HV	N/A	N/A	*	*	*	*	*	*
(Y) UAS/LV	N/A	N/A	N/A	*	*	*	*	*
(O) AS/HV	N/A	N/A	N/A	N/A	*	*	*	*
(O) AS/LV	0.336	-0.065	N/A	N/A	N/A	*	*	*
(O) UAS/HV	N/A	N/A	N/A	N/A	N/A	N/A	*	*
(O) UAS/LV	N/A	N/A	N/A	N/A	N/A	N/A	N/A	*

Ab→PI (P8)	(Y) AS/HV	(Y) AS/LV	(Y) UAS/HV	(Y) UAS/LV	(O) AS/HV	(O) AS/LV	(O) UAS/HV	(O) UAS/LV
(Y) AS/HV	*	*	*	*	*	*	*	*
(Y) AS/LV	N/A	*	*	*	*	*	*	*
(Y) UAS/HV	**-1.217**	N/A	*	*	*	*	*	*
(Y) UAS/LV	-0.69	N/A	0.668	*	*	*	*	*
(O) AS/HV	-0.994	N/A	0.254	-0.406	*	*	*	*
(O) AS/LV	**-2.131**	N/A	0.613	**1.589**	0.949	*	*	*
(O) UAS/HV	**-1.462**	N/A	-0.026	0.848	0.325	0.737	*	*
(O) UAS/LV	**-1.449**	N/A	-0.106	-0.872	0.388	0.566	-0.098	*